

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

APPLE INC,

Plaintiff,

v.

MASIMO CORPORATION and SOUND  
UNITED, LLC,

Defendants.

Civil Action No. 22-1377 (MN) (JLH)

**PUBLIC -- REDACTED VERSION**

APPLE INC,

Plaintiff,

v.

MASIMO CORPORATION and SOUND  
UNITED, LLC,

Defendants.

Civil Action No. 22-1378 (MN) (JLH)

**PUBLIC -- REDACTED VERSION**

**LETTER TO THE HONORABLE JENNIFER L. HALL FROM JOHN C. PHILLIPS, JR.**

Dated: September 1, 2023

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Dear Judge Hall:

Masimo respectfully requests that the Court order Apple to search for and produce documents relevant to Masimo's damages due to Apple's sales of its infringing Apple Watches.

**Group 1. RFPs related to Apple revenue streams driven by Apple Watch sales (RFP Nos. 132-134, 136-137).** Apple's profit on its accused Apple Watch product is only part of the profit Apple generates by selling the watch. Apple also generates substantial follow-on revenue from the Apple App Store due to software and subscriptions purchased by watch users. Apple tightly controls its ecosystem, including the operating system and software that run on its products. Apple Watch users are stuck in Apple's ecosystem, which requires them to use the Apple App Store to download and pay for Apps, in-App purchases, and subscription services. Every accused Apple Watch sale therefore represents either a new user that Apple captures into its ecosystem or a current Apple consumer that is further entrenched into the ecosystem.

Apple earns tens of billions in revenue per year from the App Store. Ex. 5. An Apple-commissioned study estimates the App Store ecosystem "facilitated a groundbreaking \$1.1 trillion in billings and sales worldwide in 2022." Ex. 3 (Analysis Group study). The study explains that Apple's commission rate for sales of digital goods and services in 2022 was as high as 30%. *Id.* at A-3 n.7. Apple also touts that its ecosystem has "over 745 million paid subscriptions." Ex. 4 at 2. Thus, Apple leveraged the Apple Watch to generate a recurring-revenue stream from the consumers it captures in its ecosystem.

This valuable follow-on revenue is relevant to calculating a reasonable royalty to compensate Masimo for Apple's patent infringement. Apple drove sales of its Apple Watch by using Masimo's patented technology to create a pulse-oximetry feature that measures blood oxygen. When Apple launched the blood-oxygen feature in September 2020, [REDACTED]

[REDACTED] Ex. 9 (Testimony of Apple witness Stephen Waydo at 18:14-19:15). Indeed, the New York Times touted blood oxygen as the "the most significant new feature" in the Series 6. Ex. 7 ("The new Apple Watch can be summed up in two words: blood oxygen."). And [REDACTED]

[REDACTED] Ex. 8 at APL-MAS\_00158664.

Apple's ability to generate follow-on revenue from each accused Apple Watch sale bears directly on the reasonable royalty Apple would have been willing to pay to market an accused Watch. *Georgia-Pacific* factor 6 is dedicated entirely to follow-on revenue: "The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales." *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970).

Apple's follow-on revenue is also relevant to Masimo's lost profits. When Apple began infringing Masimo's patents, Masimo was developing its own module to be used in a watch to measure blood oxygen. Besides including that module in its own watch, Masimo planned to sell the module as an OEM supplier to other watch manufacturers, just as it does with its hospital products. Masimo contends that, if Apple had not infringed Masimo's patents, Apple would have purchased a Masimo OEM sensor module to include in the Apple Watch. Apple's follow-on revenue is relevant to the amount it would have been willing to pay for Masimo's module.

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Although Apple may argue that Masimo's module would have cut into Apple's profit on each watch it sold, Apple's desire to maintain and grow its ecosystem's consumer base and generate follow-on revenue would have motivated Apple to purchase from Masimo.

Accordingly, Apple's revenue streams that flow from an Apple Watch purchase are relevant to Masimo's damages claims. Masimo addresses each specific RFP below.

**RFP 133** seeks documents sufficient to show the revenue streams discussed above (e.g., App Store revenue) and Apple's corresponding profits. **RFP 136** seeks Apple's Line of Business Reports for the Apple business segment related to services, applications, or Apple's App Store from 2018 to present. Ex. 1. The requested discovery is proportional to the needs of the case because it is highly relevant to Masimo's damages claims, and Apple has not attempted to articulate any undue burden in searching for and producing documents. Apple attempted to narrow Masimo's request by offering to search for information related to "Apple apps or Apple subscriptions that use blood oxygen measurements." Ex. 10 (7/31/2023 email from Mark Kachner). But to date, Apple identified only Apple apps that Apple provides free of charge related to its blood oxygen measurement. Apple has also stated it will not provide discovery on its profit "beyond the profit on the watch hardware...." *Id.* Masimo is entitled to discover Apple's revenue from all apps and subscriptions sold through the app store.

With further regard to RFP 136, [REDACTED] Ex. 11 (8/22/23 email from David Cho). Masimo's request was not so limited. Masimo explained it seeks Apple's Line of Business Reports for the business segment to which "Apple assigns app. store and other service revenue," [REDACTED] Ex. 10 (7/12/23 email from Mark Kachner). Apple's "Services" business is highly profitable and operates as a distinct business unit from other Apple hardware products. *See* Ex. 12. Apple tracks and publicly reports its services revenue. *Id.* But Apple has refused to clarify which Line of Business of Report includes the relevant services business. Apple should immediately provide its Line of Business Reports for its services business segment responsible for the App Store.

**RFP 137** seeks information on how Apple Watch sales affect Apple's revenue, cost, or profits from the App Store. The requested discovery is proportional to the needs of the case because it is relevant to Masimo's damages claims, and Apple identifies no undue burden in producing responsive documents. Instead of identifying any burden or valid objection, Apple simply argues "Masimo has not identified any basis for further discovery into revenues that are not tied to the accused functionality." Ex. 10 (7/28/2023 email from Jeffrey Seddon). But, as discussed above, Masimo's patented technology contributed to Apple's sales of the accused Watches. Apple's financial benefit from selling the accused Watches does not stop once Apple sells the accused hardware. Apple generates significant follow-on revenue after selling the accused Watches through the App store and follow-on subscription revenue. Masimo is entitled to discover Apple's entire financial benefit from such accused sales. Indeed, such follow-on revenue is one of the *Georgia-Pacific* factors, *see* 318 F. Supp. at 1116, and is relevant to Masimo's lost profits. And as discussed above, revenue from third-party apps have always been included within the scope of Masimo's request. Ex. 10 (7/13/23 email from Mark Kachner); Ex. 11 (8/22/23 email from Mark Kachner).



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**RFP 132** seeks Apple's analyses concerning how including a blood-oxygen feature on its watches impacts Apple's follow-on revenue. Ex. 1. Apple agreed only to search for documents showing how including certain monitoring features affects watch sales, without agreeing to provide discovery on the impact to follow-on revenue. Ex. 10 (7/28/2023 email from Jeffrey Seddon). Similarly, **RFP 134** seeks documents sufficient to show Apple's finances concerning App services specifically related to the blood-oxygen feature. Ex. 1. Apple agreed only to search for documents concerning Apple's own apps. *Id.* But Apple must also produce documents concerning third-party apps that use the blood-oxygen feature, as Apple receives as much as 30% of all App and subscription sales by third parties. As explained above, such documents are relevant to Masimo's damages theories and Apple has not identified any undue burden in complying with these requests. The Court should not allow Apple to foreclose Masimo's damages theories by simply refusing to provide the necessary discovery.

After a second meet and confer on August 21, Apple accused Masimo of expanding RFPs 132-134 and 137 to include financial data from third-party apps. Ex. 11 (8/22/23 email from David Cho). But Masimo never limited its requests to Apple apps to begin with. Masimo consistently requested "***all sources*** of Apple's service revenue related to the Apple Watch," and explained "Masimo should be allowed to discover Apple's financial benefit beyond profit on watch hardware sale itself to also include profit from ***all watch services*** including from the App store, warranty, service, and replacement parts." Ex. 10 (7/13/23 email from Mark Kachner) (emphasis added).

**Group 2. (RFPs 163-164). RFPs 163 and 164** seek information related to valuations of physiological-monitoring technologies or intellectual property relating to such monitoring, as well as documents concerning Apple buying, acquiring, or licensing such technology. Apple disputes neither the relevance of these requests nor their proportionality. In July, Apple stated it would conduct a further investigation for responsive documents, without committing to produce the results of its search. Ex. 10 (7/31/2023 email from Mark Kachner). In late August, Apple stated only that its investigation was ongoing. Ex. 11 (8/21/23 email from David Cho). Despite multiple conferences of counsel, Apple has refused to commit to producing responsive documents. *Id.* The close of fact discovery is approaching and the parties are planning their depositions. The Court should not allow Apple to delay its production of these admittedly relevant documents.

\* \* \*

For the reasons stated herein, the Court should require Apple to produce documents responsive to these requests.

Respectfully submitted,

/s/ John C. Phillips, Jr.

John C. Phillips, Jr. (#110)

cc: All counsel of record (via Email & CM/ECF)

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### Table of Exhibits

Ex. No.	Description
1	Table Summarizing Masimo's Requests for Production at issue.
2	Excerpts of Plaintiff Apple Inc.'s Objections and Responses to Defendants' Second Set of Requests For Production (Nos. 50-165), Case No. 22-1377 and -1378, June 13, 2023.
3	The Continued Growth and Resilience of Apple's App Store Ecosystem, by Analysis Group, May 2023.
4	January 10, 2022 article, "Apple services enrich peoples' lives throughout the year." Available at <a href="https://www.apple.com/newsroom/2022/01/apple-services-enrich-peoples-lives-throughout-the-year/">https://www.apple.com/newsroom/2022/01/apple-services-enrich-peoples-lives-throughout-the-year/</a> .
5	January 10, 2022 article, "Apple implies it generated record revenue from the App Store during 2021." Available at <a href="https://www.cnbc.com/2022/01/10/apple-implies-it-generated-record-revenue-from-app-store-during-2021-.html">https://www.cnbc.com/2022/01/10/apple-implies-it-generated-record-revenue-from-app-store-during-2021-.html</a> .
6	Intentionally omitted.
7	September 17, 2020 article from N.Y. Times: "The New Apple Watch Measures Your Blood Oxygen. Now What?"
8	Apple Watch Buyer survey, FY21-Q1 Report, APL-MAS 00158639-802.
9	<i>Masimo v. Apple</i> , Trial Testimony excerpt, April 19, 2023 (Stephen Waydo).
10	Party correspondence leading up to and following the parties' July 12, 2023 meet-and-confer on the Masimo RFPs at issue.
11	Party correspondence leading up to and following the parties' additional August 21, 2023 meet-and-confer on the Masimo RFPs at issue.
12	February 14, 2022, Apple's 5 Most Profitable Lines of Business. Available at <a href="https://www.investopedia.com/apple-s-5-most-profitable-lines-of-business-4684130">https://www.investopedia.com/apple-s-5-most-profitable-lines-of-business-4684130</a> .

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# EXHIBIT 1

**Exhibit 1**

<b>Masimo's Requests</b>
RFP No. 132: All documents, communications, and things referring or relating to Apple's analysis of subscription health or wellness services or applications related to noninvasive blood oxygen measurements or other noninvasive health monitoring features.
RFP No. 133: Documents sufficient to show (on a monthly basis) all revenue sources, costs, and profits from 2018 to present for all services that are associated, are conveyed with, or are functionally related to the Apple Watch, including but not limited to Apple Store applications that are associated with the Apple Watch.
RFP No. 134: Documents sufficient to show (on a monthly basis) Apple's revenue, costs, and profits from 2018 to present for any services related to noninvasive blood oxygen measurements or other noninvasive health monitoring features.
RFP No. 136: Apple's Line of Business Reports for the Apple business segment related to services, applications, or Apple's App Store from 2018 to present.
RFP No. 137: All documents, communications, and things referring or relating to how sales of the Apple Watch impact or influence Apple's revenue, cost, or profits from the App Store.
RFP No. 163: All documents, communications, and things referring or relating to, or otherwise evidencing, valuations of any physiological monitoring technology or intellectual property relating to physiological monitoring technology.
RFP No. 164: All documents, communications, and things referring or relating to forecasts, projections, or strategic evaluations regarding Apple's consideration of a purchase, acquisition, or license of technology from any company concerning physiological monitoring.



# EXHIBIT 2

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

APPLE INC.,

*Plaintiff,*

v.

MASIMO CORPORATION and  
SOUND UNITED, LLC,

*Defendants.*

MASIMO CORPORATION and CERCACOR  
LABORATORIES, INC.,

*Counter-Claimants,*

v.

APPLE INC.

*Counter-Defendant.*

C.A. No. 22-1377-MN-JLH

C.A. No. 22-1378-MN-JLH

**JURY TRIAL DEMANDED**

**PLAINTIFF APPLE INC.'S OBJECTIONS AND RESPONSES TO DEFENDANTS'  
SECOND SET OF REQUESTS FOR PRODUCTION (NOS. 50-165)**

Pursuant to Rules 26 and 34 of the Federal Rules of Civil Procedure, and the Local Rules of the United States District Court for the District of Delaware, Plaintiff Apple Inc. (“Apple”) hereby provides the following Objections and Responses to Defendants Masimo Corporation’s (“Masimo”), Sound United, LLC’s (“Sound United”), and Counterclaimant Cercacor Laboratories, Inc.’s (“Cercacor”) (collectively, “Defendants”) Second Set of Requests for Production (Nos. 50-165). Apple’s discovery and investigation in connection with this action are continuing. As a result, Apple’s objections and responses are limited to information obtained and reviewed to date and are given without prejudice to Apple’s right to supplement or amend these objections and responses to the extent allowed by the Federal Rules of Civil Procedure, the Local

that it seeks discovery duplicative of discovery previously produced in the cases captioned *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands the request, Apple responds as follows:

Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 132:**

All documents, communications, and things referring or relating to Apple's analysis of subscription health or wellness services or applications related to noninvasive blood oxygen measurements or other noninvasive health monitoring features.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 132:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party, nor proportional to the needs of the case. Apple further objects to this request as overbroad, unduly burdensome, irrelevant, and not proportional to the needs of this case to the extent it seeks "[a]ll documents, communication, and things" without limitation, including with respect to a temporal or geographic scope. Apple further objects to this request because the phrases "subscription health or wellness services or applications" and "other noninvasive health monitoring features" are vague, ambiguous, overbroad, and seek materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent it seeks information protected from disclosure by the attorney-client privilege, common interest privilege, and/or work product doctrine, or that is otherwise protected from disclosure. Apple further objects to this request to the



extent it seeks information, documents, and/or things that are outside the possession, custody, or control of Apple; that are not kept in the ordinary course of Apple's business; that can be obtained from other sources that are more convenient, less burdensome, and/or less expensive; that are equally available to Defendants; or that are publicly available. Apple further objects to this request as premature to the extent it seeks expert discovery in advance of dates for disclosing such information set by the Court. Apple will disclose expert opinions in accordance with the applicable scheduling orders of the Court.

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands the request, Apple responds as follows:

Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 133:**

Documents sufficient to show (on a monthly basis) all revenue sources, costs, and profits from 2018 to present for all services that are associated, are conveyed with, or are functionally related to the Apple Watch, including but not limited to Apple Store applications that are associated with the Apple Watch.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 133:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it seeks information regarding "revenue sources, costs, and profits" for "services" not accused of infringement or tied to any Accused Feature. Apple objects to this request as overbroad, unduly burdensome, and not proportional to the needs of this case to the extent it seeks "all services." Apple objects to this request because the phrases "services that are associated, are conveyed with, or are functionally related to the Apple Watch" and "Apple Store applications that are associated with the Apple Watch" are vague, ambiguous, overbroad, and seek materials that are neither

relevant nor proportional to the needs of the case. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent Apple understands this request, Apple responds as follows:

Apple will not search for or product information responsive to this request.

**REQUEST FOR PRODUCTION NO. 134:**

Documents sufficient to show (on a monthly basis) Apple's revenue, costs, and profits from 2018 to present for any services related to noninvasive blood oxygen measurements or other noninvasive health monitoring features.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 134:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it seeks information regarding "revenue sources, costs, and profits" for "services" not accused of infringement or tied to any Accused Feature. Apple objects to this request because the phrase "other noninvasive health monitoring features" is vague, ambiguous, overbroad, and seeks materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276

that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands this request, Apple responds as follows:

Apple will not search for or produce information responsive to this request.

**REQUEST FOR PRODUCTION NO. 135:**

Apple's Line of Business Reports for the Apple Watch from 2018 to present.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 135:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party. Apple objects to this request because the phrase "Line of Business Reports for the Apple Watch" is vague, ambiguous, overbroad, and seeks materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands this request, Apple responds as follows:



Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 136:**

Apple's Line of Business Reports for the Apple business segment related to services, applications, or Apple's App Store from 2018 to present.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 136:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it seeks documents regarding unspecified "services," unspecified "applications," and "Apple's App Store," none of which are accused of infringement or tied to any Accused Feature. Apple objects to this request because the phrases "Line of Business Reports" and "Apple business segment related to services, [or] applications" are vague, ambiguous, overbroad, and seek materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands this request, Apple responds as follows:

Apple will not search for or produce information responsive to this request.

**REQUEST FOR PRODUCTION NO. 137:**

All documents, communications, and things referring or relating to how sales of the Apple Watch impact or influence Apple's revenue, cost, or profits from the App Store.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 137:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it seeks documents regarding “the App Store,” which is not accused of infringement or tied to any Accused Feature. Apple objects to this request as overbroad, unduly burdensome, irrelevant, and not proportional to the needs of this case to the extent it seeks “all documents, communications, and things” without limitation, including with respect to a relevant temporal or geographic scope. Apple objects to this request to the extent it seeks information protected from disclosure by the attorney-client privilege, common interest privilege, and/or work product doctrine, or that is otherwise protected from disclosure. Apple further objects to this request to the extent it seeks information, documents, and/or things that are outside the possession, custody, or control of Apple; that are not kept in the ordinary course of Apple’s business; that can be obtained from other sources that are more convenient, less burdensome, and/or less expensive; that are equally available to Defendants; or that are publicly available. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties’ cross-use agreement and the Court’s oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent that Apple understands this request, Apple responds as follows:

Apple will not search for or produce information responsive to this request.

discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent Apple understands this request, Apple responds as follows:

Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 163:**

All documents, communications, and things referring or relating to, or otherwise evidencing, valuations of any physiological monitoring technology or intellectual property relating to physiological monitoring technology.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 163:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it is not tied to any Apple Asserted Patent, Masimo Asserted Patent, or Accused Feature. Apple objects to this request as overbroad, unduly burdensome, irrelevant, and not proportional to the needs of this case to the extent it seeks "all documents, communications, and things" without limitation, including with respect to a relevant temporal or geographic scope. Apple objects to this request because the phrase "physiological monitoring technology" is vague, ambiguous, overbroad, and seeks materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent it seeks information protected from disclosure by the attorney-client privilege, common interest privilege, and/or work product doctrine, or that is otherwise protected from



disclosure. Apple further objects to this request to the extent it seeks information, documents, and/or things that are outside the possession, custody, or control of Apple; that are not kept in the ordinary course of Apple's business; that can be obtained from other sources that are more convenient, less burdensome, and/or less expensive; that are equally available to Defendants; or that are publicly available. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent Apple understands this request, Apple responds as follows:

Defendants' request, which broadly calls for all documents related to a legal test, does not designate with reasonable particularity any category of documents, nor provide sufficient specificity to allow Apple to search for documents in response to the request. Nonetheless, Apple will produce responsive, relevant, and non-privileged documents on which it intends to rely as part of any analysis regarding valuations of any physiological monitoring technology, and further states that Apple may rely on expert testimony regarding such valuations and documents identified as part of that expert analysis, as well as documents from third-parties or Defendants themselves. Furthermore, Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 164:**

All documents, communications, and things referring or relating to forecasts, projections, or strategic evaluations regarding Apple's consideration of a purchase, acquisition, or license of technology from any company concerning physiological monitoring.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 164:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it is not tied to any Apple Asserted Patent, Masimo Asserted Patent, or Accused Feature. Apple objects to this request as overbroad, unduly burdensome, irrelevant, and not proportional to the needs of this case to the extent it seeks "all documents, communications, and things" without limitation, including with respect to a relevant temporal or geographic scope. Apple objects to this request because the phrase "physiological monitoring" is vague, ambiguous, overbroad, and seeks materials that are neither relevant nor proportional to the needs of the case. Apple objects to this request to the extent it seeks information protected from disclosure by the attorney-client privilege, common interest privilege, and/or work product doctrine, or that is otherwise protected from disclosure. Apple further objects to this request to the extent it seeks information, documents, and/or things that are outside the possession, custody, or control of Apple; that are not kept in the ordinary course of Apple's business; that can be obtained from other sources that are more convenient, less burdensome, and/or less expensive; that are equally available to Defendants; or that are publicly available. Apple objects to this request to the extent that it seeks discovery duplicative of discovery previously produced in *Masimo Corp. et al., v. Apple, Inc.*, No. 20-cv-00048 (C.D. Cal.) and/or *In the Matter of Certain Light-Based Physiological Measurement Devices and Components Thereof*, No. 337-TA-1276 that is subject to the parties' cross-use agreement and the Court's oral order regarding permissible cross-use. D.I. 95 (No. 22-1377); D.I. 83 (No. 22-1378).

Based on its investigation to date, and subject to and without waiving the foregoing general and specific objections, and to the extent Apple understands this request, Apple responds as follows:

Defendants' request, which broadly calls for all documents related to a legal test, does not designate with reasonable particularity any category of documents, nor provide sufficient specificity to allow Apple to search for documents in response to the request. Nonetheless, Apple will produce responsive, relevant, and non-privileged documents on which it intends to rely as part of any analysis regarding strategic evaluations of any physiological monitoring technology, and further states that Apple may rely on expert testimony regarding such evaluations and documents identified as part of that expert analysis, as well as documents from third-parties or Defendants themselves. Furthermore, Apple is willing to meet and confer with Defendants regarding the scope of this request.

**REQUEST FOR PRODUCTION NO. 165:**

All documents, communications, and things referring or relating to forecasts or projections regarding sales, revenue, expenses, and/or profit associated with including pulse oximetry in any Apple Watch.

**RESPONSE TO REQUEST FOR PRODUCTION NO. 165:**

Apple incorporates by reference its General Objections. In addition, Apple specifically objects to this request as not relevant to the claims or defenses of any party because it is not limited to the Accused Features or the accused Apple Watches. Apple objects to this request as overbroad, unduly burdensome, irrelevant, and not proportional to the needs of this case to the extent it seeks "all documents, communications, and things" without limitation, including with respect to a relevant temporal or geographic scope. Apple objects to this request to the extent it seeks information protected from disclosure by the attorney-client privilege, common interest privilege,

OF COUNSEL:

John M. Desmarais  
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# EXHIBIT 3



# The Continued Growth and Resilience of Apple's App Store Ecosystem



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The conclusions and opinions expressed are exclusively those of the authors.



## The App Store ecosystem: 2022 at a glance

The App Store ecosystem facilitated a groundbreaking \$1.1 trillion in billings and sales worldwide in 2022. More than 90% of this figure originated from transactions that did not happen through the App Store, meaning that these amounts accrued solely to developers and other third parties, and that Apple collected no commission on them.

Over the past few years, through the ebbs and flows of the COVID-19 pandemic, the App Store ecosystem grew at a substantial and remarkably steady rate (between 27% and 29% annually), consistent with a flourishing marketplace. This steady overall growth hides important variations within app categories that reflect consumers' changing habits as the pandemic evolved. For example, some categories grew substantially in 2022 as many people returned to in-person activities, with travel (up 84%) and ride hailing services (up 45%) leading the way. Other categories, such as grocery sales, food delivery, and digital goods and services consumed on iOS apps, grew more modestly in 2022 after booming at the height of the pandemic. In-app advertising on iOS apps grew at a faster pace in 2022 than 2021, driven by the strong performance of social media, podcasts, and general retail apps.

**\$1.1  
trillion**

ecosystem in 2022

**+29%**

growth in the  
ecosystem in 2022

**+84%**

in iOS-app-based  
travel sales in 2022

**+45%**

in iOS-app-based  
ride hailing sales in  
2022

Variations across regions were also notable, with a number of factors at play in certain regions in a challenging global economic environment: Inflation, a stronger US dollar, and regulatory headwinds in the video game industry in China. These factors should be considered when interpreting our global results and regional variations.

### Fifteen years of the App Store

The App Store has been a safe and secure home to a large and varied array of apps for 15 years. Users today have access to over 123 times more apps than they did at the end of 2008, and annual downloads on the App Store increased 15-fold between 2009 and 2022. Users have downloaded apps more than 370 billion times and developers have earned more than \$320 billion in earnings directly on the App Store since its launch. Over the past 15 years, the App Store has supported new and growing sectors of the economy and has provided businesses with new ways to engage with customers and lower costs.

Apple has implemented rules and policies, such as the strict App Review process, to foster user trust. These policies have prevented billions of dollars in fraudulent transactions. Apple has also supported developers over the past 15 years through a variety of technical tools, analytics, and education initiatives, all of which have helped developers add new functionality to their apps, track their performance on the App Store, and receive support from Apple experts.

In 2022, over

**90%**

of billings and sales facilitated by the ecosystem occurred outside the App Store.

#### Billings and Sales

"Billings" refers to app purchases and in-app purchases, including subscriptions, which use Apple's in-app payment. "Sales" refers to money spent by customers purchasing goods and services in general. We use the term "facilitated" to include the various ways in which apps contribute to generating billings and sales.

## The App Store ecosystem

### The App Store ecosystem globally in 2022

**We estimate that the App Store ecosystem facilitated more than \$1.1 trillion in billings and sales worldwide in 2022**, up from \$868 billion in 2021, \$643 billion in 2020, and \$519 billion in 2019. Of that total, \$104 billion, or 9%, originated from billings and sales of digital goods and services consumed on iOS apps; \$910 billion, or 81%, from sales of physical goods and services made on iOS apps; and \$109 billion, or 10%, from in-app advertising on iOS devices. (See Table 1.)

Apple only collects a commission on app purchases, in-app purchases, and in-app subscriptions that go through the App Store. No commission is collected on purchases of digital goods and services that happen outside of apps (e.g., purchasing a subscription to a newspaper through a web browser), on purchases of physical goods and services through apps (e.g., when a user pays for a ride on a ride hailing app or buys groceries online), or on in-app ad revenue. More than 90% of the \$1.1 trillion in billings and sales facilitated by the ecosystem occurred outside the App Store, meaning that these amounts accrued solely to developers and other third parties and that Apple collected no commission on them. The share of billings and sales that accrue solely to developers has continued to increase year-to-year. (See Appendix Table 1 for further methodological details.)

**Table 1: Estimated Billings and Sales Facilitated by the App Store Ecosystem, Worldwide, 2019-2022 (\$ Billion)\***

	2019	2020	2021	2022
Digital Goods and Services**	\$61	\$86	\$102	\$104
Physical Goods and Services	\$413	\$511	\$678	\$910
M-Commerce				
General Retail	\$268	\$383	\$471	\$621
Travel	\$57	\$38	\$56	\$102
Food Delivery and Pickup	\$31	\$36	\$66	\$77
Grocery	\$14	\$22	\$43	\$52
Ride Hailing	\$40	\$26	\$33	\$48
Digital Payment	\$4	\$5	\$9	\$10
In-App Advertising***	\$45	\$46	\$88	\$109
<b>Total</b>	<b>\$519</b>	<b>\$643</b>	<b>\$868</b>	<b>\$1,123</b>

\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings. We include sales from digital goods and services purchased elsewhere but used on apps on Apple devices, and we subtract billings from in-app purchases made via the App Store but used elsewhere. The estimate relies on third-party sources and Apple data. See Appendix for details.

\*\*\* iOS in-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

### Methodology

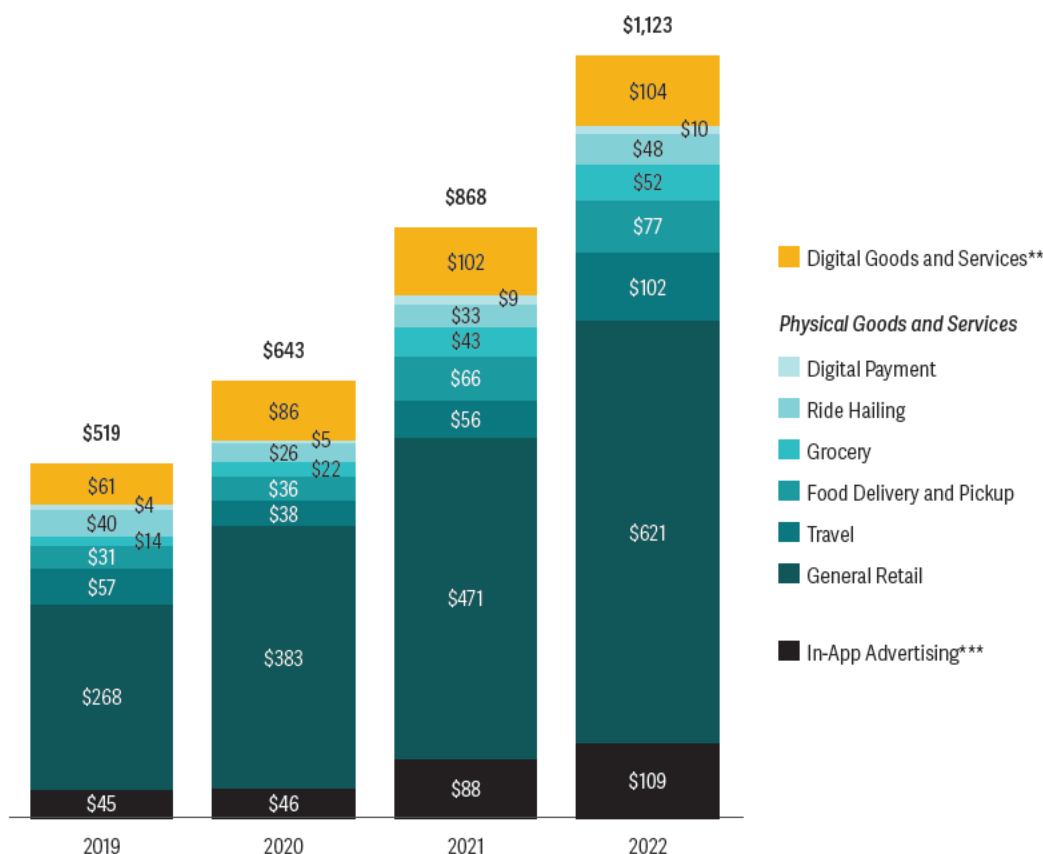
"iOS apps" include apps on iPhone and iPad devices. Apps developed by Apple, such as Apple Music, as well as mobile browser apps, such as Google Chrome, are excluded from this analysis. Third-party apps featured within Apple TV are included in our analysis of video streaming. Categories as presented in this report do not reflect App Store categories.

### In-App Ad Sales

Estimates of in-app ad sales for iOS apps include revenue generated from the publishing of advertisements within apps only. Estimates do not include advertising on mobile web (such as on mobile browser apps) or search advertising, such as Apple Search Ads.

As in previous years, most of the billings and sales facilitated by the App Store ecosystem came from the sales of physical goods and services through iOS apps. Of those, general retail remained the largest category by far. Two other categories jockeyed for the next two spots: In 2021, food delivery and pickup temporarily surpassed travel as the second-largest category, while in 2022, travel once again was number two, with \$102 billion in sales through the App Store. (See Figure 1.) The consistently high amount of sales of physical goods and services demonstrates that the App Store ecosystem continues to provide a trusted platform for developers to sell such products. For example, Apple Pay is an important tool that supports developers in this segment: Apple Pay offers a standardized, secure, and seamless way for customers to pay for physical goods and services in-app.

**Figure 1: Estimated Billings and Sales Facilitated by the App Store Ecosystem by App Category, 2019-2022 (\$ Billion)\***



\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\*\* iOS in-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

### **Estimating the size of the App Store ecosystem**

The direct monetization of apps represents a small fraction of the overall commerce the App Store facilitates, because developers can monetize their apps in several ways that do not involve payments through the App Store, such as:

1. Selling digital goods and services outside of the App Store for use within apps on Apple devices (e.g., news and magazine subscriptions, music and video streaming)
2. Selling physical goods and services through apps on Apple devices (e.g., food and grocery delivery or ride hailing)
3. Offering ad-supported content within apps (e.g., ad-supported games)

While our analysis captures the major app monetization strategies, we do not capture all of the ways in which the App Store ecosystem facilitates sales or all of the benefits created by apps. For example, we do not include benefits that companies derive from "companion apps" that raise the value of their goods and services, including smart home apps (e.g., Nest, Ring) and health apps, among many others.

A complete description of our methodology is included in the Appendix.

To read about our estimates of billings and sales facilitated by the App Store in 2019 and 2020, please see our previous reports: [\*How Large Is the Apple App Store Ecosystem?\*](#) and [\*A Global Perspective on the Apple App Store Ecosystem\*](#).

Mobile general  
retail sales on  
iOS apps have  
increased by

**64%**

since 2020.

Billings and sales  
of digital goods  
and services  
consumed on  
iOS apps have  
increased by

**21%**

since 2020.

## Global trends (2019-2022)

**The App Store ecosystem grew 27% between 2020 and 2021 and 29% between 2021 and 2022, in line with the 27% growth from 2019 to 2020.**<sup>1</sup> Overall, such growth is a sign of a flourishing marketplace, where apps innovate, grow, and compete.<sup>i</sup>

Each of the three top-level ecosystem categories grew each year, but at somewhat different rates. (See Table 2.) Specifically, iOS-app-based sales of physical goods and services accelerated, growing 30% from 2020 to 2021 and 34% from 2021 to 2022. In-app advertising in iOS apps continued to grow at high rates: Increasing 10% from 2020 to 2021 and 24% from 2021 to 2022.

The size of digital goods and services facilitated by the App Store grew by 19% from 2020 to 2021 before plateauing (up 2%) in 2022. These changes reflect a period of rapid growth in 2020 as people shifted to a more digital world during the pandemic, followed by a gradual transition through 2022 to a new normal, with sustained higher levels of digital billings and sales.

**Digital goods and services:** Within digital goods and services consumed on iOS apps, we saw large increases in 2020 in enterprise, education, and fitness apps, following a shift toward remote work, online schooling, and online fitness due to gym closures. Enterprise apps have continued to grow in popularity since the pandemic, and in 2022 represented one of the fastest growing digital goods and services categories in our ecosystem estimate of billings and sales, only behind app-based entertainment. In 2022, business-oriented apps represented five of the top 25 most downloaded apps in the US (Zoom, Microsoft Teams, Microsoft Outlook, Microsoft Intune Company Portal, and Authenticator). Billings and sales continued to increase significantly for all categories of digital goods and services in 2021 and then stabilized in 2022, as people had largely adapted to remote and hybrid models of work and school, and were returning to in-person activities in many regions of the world. Online dating services, for example, grew faster in 2021, as many people got vaccinated against COVID-19 and returned to in-person dating, and continued to grow in 2022.<sup>ii</sup>

One exception to the stabilization seen in other categories in 2022 was app-based entertainment services, a category that includes live-streaming apps, horoscope apps, and group chat apps, which saw the largest growth among digital goods and services categories. One notable trend within app-based entertainment services is the growth of apps supporting the creator economy in recent years; examples of these apps include live-streaming apps Twitch and BIGO LIVE, and chatroom app Discord.

<sup>1</sup> All changes in this report are calculated using the most current figures for 2019 and 2020. We updated some of the estimates from our previous reports to account for (1) methodological improvements and refinements developed over time, and (2) retroactive changes made by third-party data sources. We rely on the updated numbers, rather than our original estimates, to calculate changes compared to 2019 and 2020, as they will more accurately reflect underlying trends, rather than methodological improvements or updates in third-party data. See Appendix for more details.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

**Physical goods and services:** Looking at iOS-app-based purchases of physical goods and services, the consistent and substantial growth in 2021 and 2022 reflects multiple factors: A continued shift to buying goods and services through apps – in particular, for general retail, grocery, and travel; the dramatic growth of categories such as food delivery and pickup, and grocery delivery; the strong recovery of categories negatively affected by the pandemic, such as ride hailing and travel, following a return to in-person activities as vaccines were rolled out and pandemic restrictions were relaxed in many countries and regions in 2021 and throughout 2022; and global macroeconomic impacts, including inflation in some regions, changing interest rates, and foreign exchange headwinds from a strong US dollar.

iOS-app-based  
grocery sales  
increased nearly

**3.5x**

since 2019.

The category that experienced the largest growth in both 2020 and 2021 was iOS-app-based **grocery sales**.<sup>2</sup> The pandemic led many people to change their grocery shopping habits, buying groceries online – particularly on their iPhone – using delivery services or ordering ahead and picking them up at the store. These changes in habits were reflected in 67% growth from 2019 to 2020 and 74% growth from 2020 to 2021. iOS-app-based grocery sales stabilized in 2022, still increasing at a substantial rate of 20%, suggesting that this shift in consumer habits is here to stay. For the second year in a row, iOS-app-based grocery sales remained larger than ride hailing in the App Store ecosystem in 2022, making it the fourth largest m-commerce category.

iOS-app-based  
food delivery  
and pickup sales  
increased nearly

**2.3x**

since 2019.

Similarly, owing to pandemic restrictions on indoor dining and changes in consumer habits, sales of **food delivery and pickup** on iOS apps grew substantially throughout the pandemic (up 40% and 41% in 2020 and 2021, respectively), and continued to grow in 2022 though at a somewhat more modest clip (up 17%). This strong growth led food delivery and pickup to briefly become the second-largest m-commerce category in the App Store ecosystem (behind general retail) in 2021 before returning to third (behind general retail and travel) in 2022. The pandemic also continued to drive an increase in digital payments in 2021 (up 59%, compared to 54% in 2020) as contactless payment methods replaced cash, a shift that appears to reflect a longer-term change in payment methods (9% growth in 2022).

<sup>2</sup> Grocery refers to purchases of food and beverages for pickup or delivery from the online stores of large supermarkets (e.g., Walmart), internet retailers (e.g., Amazon Fresh), dedicated grocery delivery services (e.g., Instacart), and subscription-based services (e.g., HelloFresh). Food delivery and pickup refers to orders of prepared meals from restaurants directly or through platforms (e.g., JustEat) for direct consumption.



## The Continued Growth and Resilience of Apple's App Store Ecosystem

**General retail** sales on iOS apps – the largest m-commerce component of the ecosystem – showed strong growth in 2021 (up 24%) and grew even more in 2022 (32%). This increase in general retail was partially driven by an increase in the share of iOS device usage in China,<sup>iii</sup> which has historically been the largest contributor to the general retail category.

As vaccines became available and pandemic restrictions were relaxed in 2021, **travel** and **ride hailing** reversed their pandemic-related declines. These two categories grew 47% and 30%, respectively, in 2021, and an impressive 84% and 45% in 2022. iOS-app-based sales in both categories in 2022 exceeded their pre-pandemic levels.

**In-app advertising:** Ad spend was substantially higher in 2022 compared to 2021. This was consistent with broader macro trends in the ad space, which had a strong year overall despite challenges from some individual players. The ad market saw strong growth for certain short-video apps, retail (e.g., Amazon), and podcasts, driving the overall increase in in-app advertising. The increase in iOS usage shares in China also drove some of this growth.

**Table 2: Yearly Changes in the App Store Ecosystem, Worldwide, 2019-2022**

	2019 to 2020	2020 to 2021	2021 to 2022
Digital Goods and Services <sup>*,**</sup>	+41%	+19%	+2%
Physical Goods and Services	+26%	+30%	+34%
M-Commerce			
General Retail	+42%	+24%	+32%
Travel	-33%	+47%	+84%
Food Delivery and Pickup	+40%	+41%	+17%
Grocery	+67%	+74%	+20%
Ride Hailing	-33%	+30%	+45%
Digital Payment	+54%	+59%	+9%
In-App Advertising <sup>**,***</sup>	+23%	+10%	+24%
<b>Total</b>	<b>+27%</b>	<b>+27%</b>	<b>+29%</b>

\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\* Changes between both 2019 to 2020 and 2020 to 2021 are based on updated numbers. See Appendix for more details.

\*\*\* iOS In-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

## Regional dynamics on the App Store ecosystem

### *The App Store ecosystem by region in 2022*

In 2022, roughly as in previous years, the US accounted for almost 25% of the billings and sales facilitated by the App Store ecosystem, China<sup>3</sup> accounted for 51%, and Europe 11%. Physical goods and services were the largest category in each region. (See Table 3, as well as Appendix Table 2 for the analogous 2021 table.) Within physical goods and services, general retail dominated in all regions, with slight differences in the ordering of the other m-commerce subcategories.

**Table 3: Estimated Billings and Sales Facilitated by the App Store Ecosystem, Large Regions, 2022 (\$ Billion)\***

	US	China	Europe****	Rest of the World	Total
Digital Goods and Services**	\$41	\$21	\$11	\$30	\$104
Physical Goods and Services	\$182	\$523	\$93	\$111	\$910
M-Commerce					
General Retail	\$96	\$411	\$51	\$63	\$621
Travel	\$27	\$32	\$21	\$22	\$102
Food Delivery and Pickup	\$21	\$36	\$9	\$11	\$77
Grocery	\$13	\$25	\$6	\$8	\$52
Ride Hailing	\$22	\$14	\$6	\$6	\$48
Digital Payment	\$4	\$6	-	-	\$10
In-App Advertising***	\$50	\$25	\$15	\$19	\$109
<b>Total</b>	<b>\$273</b>	<b>\$570</b>	<b>\$119</b>	<b>\$160</b>	<b>\$1,123</b>

\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\*\* iOS In-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

\*\*\*\* Europe includes countries in Western, Central, and Eastern Europe (including the UK and the Nordic Region, not including Russia).

3 Throughout the report, China refers to Greater China.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

The UK remained the largest contributor to the App Store ecosystem in Europe, in part thanks to its large m-commerce sector and relatively high iOS market share. In most countries, general retail, travel, and food delivery and pickup remained the three largest subcategories within m-commerce. (Italy is an exception; see Table 4.)

**Table 4: Estimated Billings and Sales Facilitated by the App Store Ecosystem, Select European Countries, 2022 (\$ Billion)\***

	UK	Germany	France	Italy	Spain
Digital Goods and Services**	\$3.2	\$2.1	\$1.3	\$0.5	\$0.3
Physical Goods and Services	\$40	\$15	\$8.9	\$3.4	\$3.4
M-Commerce					
General Retail	\$23	\$7.1	\$5.4	\$1.6	\$1.7
Travel	\$6.3	\$4.8	\$2.1	\$1.3	\$1.2
Food Delivery and Pickup	\$5.1	\$1.7	\$0.5	\$0.2	\$0.2
Grocery	\$2.7	\$0.7	\$0.5	\$0.3	\$0.2
Ride Hailing	\$2.2	\$0.5	\$0.5	\$0.1	\$0.2
In-App Advertising***	\$4.8	\$2.1	\$1.8	\$0.9	\$0.5
<b>Total</b>	<b>\$48</b>	<b>\$19</b>	<b>\$12</b>	<b>\$4.9</b>	<b>\$4.2</b>

\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\*\* iOS in-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

We find that general retail remained the largest stream of iOS-app-based sales in both Japan and South Korea in 2022, while in Australia and New Zealand, travel became the largest m-commerce category within physical goods and services, ahead of general retail. Travel was the second largest category in Japan, while food delivery and pickup remained the second largest category in South Korea. (See Table 5.)

**Table 5: Estimated Billings and Sales Facilitated by the App Store Ecosystem, Select Countries and Regions, 2022 (\$ Billion)\***

	Japan	South Korea	Australia and New Zealand
Digital Goods and Services**	\$14	\$1.8	\$1.9
Physical Goods and Services	\$25	\$26	\$10
M-Commerce			
General Retail	\$14	\$17	\$3.6
Travel	\$5.1	\$2.6	\$4.1
Food Delivery and Pickup	\$1.8	\$4.5	\$0.7
Grocery	\$3.4	\$1.7	\$0.9
Ride Hailing	\$0.7	\$0.5	\$1.2
In-App Advertising***	\$7.1	\$1.1	\$2.1
<b>Total</b>	<b>\$46</b>	<b>\$29</b>	<b>\$14</b>

\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\*\* iOS in-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

*Regional trends (2019-2022)*

In the US, China, and Europe, billings and sales of digital goods and services facilitated by the App Store ecosystem stabilized between 2021 and 2022 as categories that initially grew during the onset of the pandemic plateaued in 2022, due in part to regulatory headwinds in the video game industry in China.<sup>iv</sup> In 2021 and 2022, by contrast, iOS-app-based sales of physical goods and services increased steadily in the US (up 26% and 20%), while growth in China almost doubled due to an increase in the adoption of iOS relative to Android (24% in 2021 compared to 52% in 2022). While the digital goods and services and physical goods and services categories were stable in Europe between 2021 and 2022, this is at least partially attributable to the strong US dollar compared to the euro and British pound. In local currency, the eurozone grew comparably to the United States. Over the longer, three-year time frame, the size of the ecosystem doubled in Europe and China and grew by more than 80% in the US. (See Table 6.)

**Table 6: Yearly Changes in the App Store Ecosystem, Large Regions, 2019-2022**

	US			China			Europe****		
	'19 to '20	'20 to '21	'21 to '22	'19 to '20	'20 to '21	'21 to '22	'19 to '20	'20 to '21	'21 to '22
Digital Goods and Services*. **	+51%	+17%	+7%	+30%	+18%	+6%	+44%	+28%	+1%
Physical Goods and Services**	+26%	+26%	+20%	+23%	+24%	+52%	+54%	+49%	+2%
M-Commerce									
General Retail	+69%	+15%	+12%	+30%	+20%	+50%	+101%	+41%	-15%
Travel	-37%	+76%	+54%	-27%	+7%	+158%	-33%	+77%	+79%
Food Delivery and Pickup	+52%	+24%	+5%	+4%	+56%	+37%	+96%	+50%	-0%
Grocery	+128%	+77%	+52%	+65%	+69%	+21%	+54%	+88%	+4%
Ride Hailing	-41%	+27%	+32%	-21%	+8%	+108%	-13%	+53%	+18%
Digital Payment	+186%	+57%	-9%	+10%	+60%	+24%	-	-	-
In-App Advertising**. ***	+28%	+4%	+22%	+19%	+15%	+49%	+21%	+22%	+8%
<b>Total</b>	<b>+30%</b>	<b>+20%</b>	<b>+18%</b>	<b>+23%</b>	<b>+24%</b>	<b>+50%</b>	<b>+47%</b>	<b>+43%</b>	<b>+2%</b>

\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\* Changes from both 2019 to 2020 and 2020 to 2021 are based on updated numbers. See Appendix for more details.

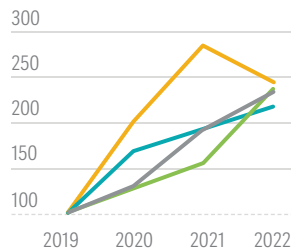
\*\*\* iOS In-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

\*\*\*\* Europe includes countries in Western, Central, and Eastern Europe (including the UK and the Nordic Region, not including Russia).

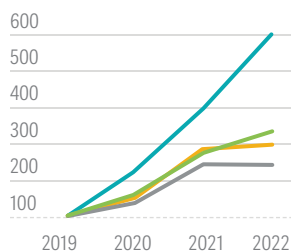
## The Continued Growth and Resilience of Apple's App Store Ecosystem

### Categories with Sustained Increases in Sales, 2019-2022

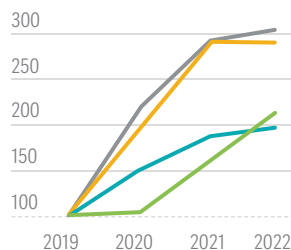
#### General Retail



#### Grocery



#### Food Delivery and Pickup



— US — China  
— Europe — Rest of World

Between 2019 and 2022, the categories of iOS-app-based purchases of physical goods and services saw large changes across regions.

### Sustained increases in general retail, grocery, and food delivery categories in the US and China; slower growth or decreases in Europe.

In 2020, we saw large increases in the general retail, grocery, and food delivery and pickup categories in the US and Europe, a trend that continued in 2021 as more consumers used apps for purchases. Food delivery apps such as DoorDash (US) and Deliveroo (Europe) expanded their reach.<sup>vi</sup> Grocery delivery startups such as Weee (US) are launching and growing as a result of these shifts,<sup>vi</sup> and major grocery retailers such as Tesco (UK) are moving to in-app ordering. Some of these trends slowed in 2022, particularly food delivery in both regions and general retail in Europe.

In 2021, grocery and food delivery and pickup increased the most in China, with growth rates of 69% and 56%, respectively. The lockdowns and strict quarantine measures in China that followed the rise of new coronavirus variants and outbreaks were likely the drivers of these changes.<sup>vii</sup> In 2022, the growth rates for grocery and food delivery remained high (21% and 37%). (See Sidebar.)

iOS-app-based general retail sales increased more than

**2x**

in all regions since 2019.

iOS-app-based grocery sales in the US increased

**6x**

since 2019.

iOS-app-based food delivery and pickup sales in Europe and China increased more than

**2x**

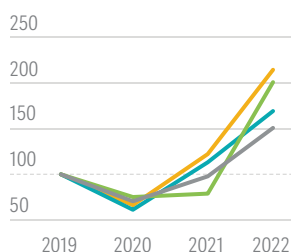
since 2019.

The above figures show sales between 2019 and 2022, indexed on 2019 (i.e., 2019=100). The underlying data behind sales of physical goods and services categories were retroactively updated from previous reports. Figures are produced based on updated numbers for 2019 and 2020.

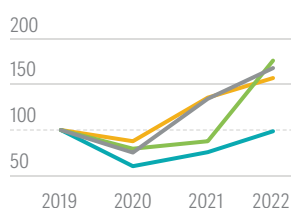
## The Continued Growth and Resilience of Apple's App Store Ecosystem

### Categories with Rebounding Sales, 2019-2022

#### Travel



#### Ride Hailing



— US — China  
— Europe — Rest of World

The above figures show sales between 2019 and 2022, indexed on 2019 (i.e., 2019=100). The underlying data behind sales of physical goods and services categories were retroactively updated from previous reports. Figures are produced based on updated numbers for 2019 and 2020.

**A continuing rebound in travel and ride hailing.** The travel and ride hailing categories declined in all major regions in 2020, as mobility and tourism halted worldwide. In 2021, these categories rebounded in the US and Europe, with both categories rising above pre-pandemic levels in Europe. China followed suit in 2022, reflecting the differing impact of the pandemic and restrictions on travel in different regions. The increase in travel-related in-app spend reflects the changing consumer m-commerce trends towards one-stop-shop convenience. Major airlines now have dedicated apps to help plan and book travel. In 2022, travel was well above pre-pandemic levels in all regions; ride hailing was as well, except in the US, where it was back to its pre-pandemic level. (See Sidebar.)

In the US,  
iOS-app-based  
travel-related  
sales increased

**54%**

since 2021.

In Europe  
iOS-app-based  
ride hailing sales  
increased

**58%**

since 2019.

**A rebound in in-app ad revenue in the US and China.** In-app advertising revenue was substantially higher in both the US and China in 2022 compared to 2021 (up 22% in the US in 2022 compared to 4% in 2021, 49% in China in 2022 compared to 15% in 2021). This growth was driven by ad spend in non-gaming apps such as video apps, retail apps, and podcasts.

### Looking ahead

While the world in 2021 began to adjust to a “new normal” in which hybrid models and in-app purchases became increasingly prevalent, COVID-19 pandemic-driven restrictions gradually relaxed or phased out across regions throughout 2022. 2022 also came with global and economic challenges, such as the war in Ukraine, regulatory headwinds in the video game industry in China, higher gas prices, supply chain disruptions, inflation, higher interest rates, and foreign exchange headwinds. On the App Store ecosystem, in-app purchases of digital goods and services stabilized, while the growth in in-app purchases of physical goods and services and in-app advertisement was strong. We anticipate that the App Store ecosystem will continue to evolve and adapt to the dynamic needs of customers across regions.



## Fifteen years of the App Store

### By the Numbers



#### iOS APPS AND USER CHOICE

**370+ billion**  
downloads since 2008

**123x** more apps available  
now compared to the end of  
2008

**15x more** annual  
downloads in 2022 than 2009

**650+ million** average  
weekly visitors to the App Store



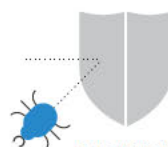
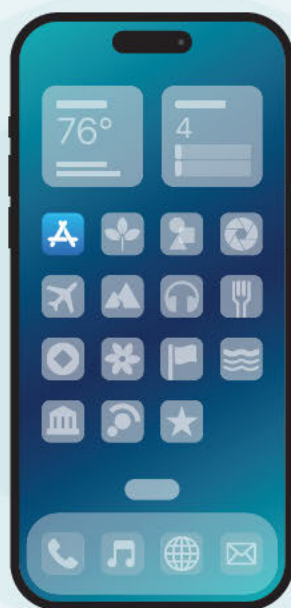
#### DEVELOPER GROWTH

**\$320+ billion**  
developer earnings since 2008

**126x more** earnings in  
2022 than 2009

**200+** countries with active  
developers in 2022  
(vs 69 in 2008)

**54%** downloads from outside  
developers' home country



#### TRUST AND SAFETY

**1.7 million** App Store  
submissions rejected in 2022

**\$5+ billion** in  
fraudulent transactions  
prevented since 2020



#### SUPPORT FOR DEVELOPERS

**40+ SDKs & 250,000** APIs

#### Education

Developer Academies, Apple-  
certified trainings, Entrepreneur  
Camps, and learn to code programs

**More ways**  
to process payments:

**50** storefronts with carrier billing

**20+** storefronts with third-party  
electronic wallets

**40+ billion** average weekly  
automatic app updates

## An explosion of opportunities and choices

The App Store was the first of its kind when it opened in 2008. For the past 15 years, it has offered a seamless and trusted way for users to download apps and new technologies. In doing so, the App Store has supported an explosion of opportunities for developers of various types of apps, leading to a proliferation of app-based products and services across app categories for consumers.

Our 2022 study, [\*"The Success of Third-Party Apps on the App Store,"\*](#) provides more detail on how the options for developers and content creators to reach consumers have changed over time.

Users can now choose from tens of thousands – sometimes hundreds of thousands – of apps across more than 20 categories that they can download. **Users today have access to over 123 times more apps than they did at the end of 2008.** Annual downloads on the App Store have increased 15-fold between 2009 – the first full year the App Store was in operation – and 2022. Since the launch of the App Store, users have downloaded apps more than 370 billion times.

**Developers of all sizes from all over the world have found opportunities on the App Store.** At the end of 2008, developers who published apps on the App Store hailed from 69 countries; today, they come from nearly every country in the world. The share of developers from regions other than the US and Europe has grown from 18% to 48% between the end of 2008 and 2022, with the share of developers from China climbing from 1% to 12%. The App Store provides opportunities for developers to distribute their apps globally: In 2022, 54% of downloads occurred in storefronts outside of developers' home countries.

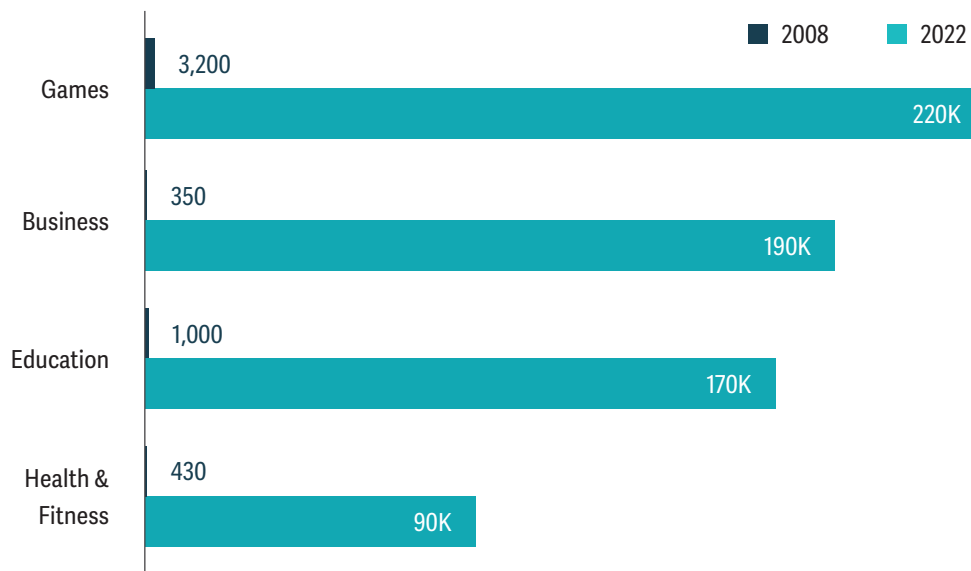
**Developers earned over \$320 billion in total on the App Store between 2008 and the end of 2022, and yearly developer earnings have grown 126-fold between 2009 and 2022.** Monetization options have expanded: When the App Store started, developers could only monetize their apps directly via the App Store through app purchases; now, app purchases are responsible for less than 1% of earnings. In-app purchases account for the majority of developer earnings (about two-thirds), and subscriptions, which now account for about one-third of earnings, are growing. Subscriptions have been increasing globally, and are offered by many different businesses, ranging from physical bookstores, to e-commerce stores, to streaming platforms.<sup>viii</sup> The App Store is no exception, and developers have embraced this global trend. The App Store provides features like the ability to cancel subscriptions easily, as well as a reduced developer commission rate on revenue from subscriptions after the first year. Over the years, more and more developers across different categories have embraced subscriptions as their preferred monetization strategy.

**Many segments have seen an enormous increase in choices for users and opportunities for developers on the App Store.** By the end of 2008, for example, users could choose from only 3,200 games; by the end of 2022, they could choose from nearly 220,000, more than a 60-fold increase. Business apps have become more important for users in recent years, especially during and in the aftermath of the COVID-19 pandemic: The App Store went from hosting only 350 business apps at the end of 2008, to over 190,000 by the end of

## The Continued Growth and Resilience of Apple's App Store Ecosystem

2022. Also, both education and health and fitness are important categories that now offer consumers tens of thousands of choices.

**Figure 2: Number of iOS Apps at the End of 2008 and 2022, Select App Store Categories**



**This increase in choices has transformed many aspects of our daily life.** As just one example, consider how the experience of going on a trip has been transformed by apps. Prior to the App Store, a typical travel experience included printing paper boarding passes from one's computer, waiting at a taxi stand or bus stand for a ride from the airport to one's destination, using unwieldy folding maps to navigate a new city or expensive and clunky GPS devices while driving, and waiting to get back home to share photos and videos with family and friends. Since the advent of the App Store, this experience has been transformed: Mapping apps make it easier to navigate a new destination and find reviews of attractions and restaurants, ride hailing apps allow travelers to get around an unfamiliar city, and communication and social media apps allow travelers to share photos and videos in real time.

### *Supporting new and growing sectors of the economy*

The ability to distribute software – specifically, apps – seamlessly through hundreds of millions of devices, paired with Apple's hardware and software advances, made entirely new types of apps possible and allowed other categories of apps to scale massively.

- **Mobile gaming:** In the early days, mobile games such as Tetris and solitaire offered a simple experience to pass the time. Since then, advances in hardware, software, graphics, and screen quality have led to an explosion of mobile gaming. Games that use heightened processing capabilities, realistic graphics, and augmented reality provide a state-of-the-art gaming experience without the need to buy a console.
- **Transportation platforms and food delivery:** Since launching nearly 10 years



## The Continued Growth and Resilience of Apple's App Store Ecosystem

### Examples of apps from new and growing sectors of the economy



**Honkai: Star Rail (China, 2023)** is a role-playing space fantasy game that was one of the most highly anticipated and successful RPG releases of 2023.



**Weee! (US, 2014)** is a grocery delivery app that allows users to shop for Asian and Latino food options.



**Ten Percent Happier (US, 2015)** is a meditation app that helps users start and sustain a mindfulness practice.



**Twinkl (UK, 2017)** is an educational app that provides teachers access to a variety of educational resources, including worksheets, lesson plans, educational games, and more.

ago, ride hailing platforms have revolutionized how people get around worldwide, leveraging riders' and drivers' use of connected devices that can track their locations. This new paradigm has been extended with the emergence of micro-mobility apps that offer bike, e-bike, and scooter sharing, and car sharing apps that allow users to rent a car for a few hours. Similarly, food delivery apps connect a network of customers, restaurants, and delivery drivers by taking advantage of mapping and location technology. Apps give users and workers the ability to complete these transactions without needing to carry cash or credit cards.

- **Music streaming and video streaming:** The ability to stream content at any time and in any place contributed to the expansion of music and video streaming services. Improvements in battery life, screen size, and screen quality have made watching content on iPhone and iPad more enjoyable. Additionally, digital rights management features, such as technology that prevents users from screen recording while the video is playing, have helped protect content owners and allowed video streaming services to flourish.
- **Education:** Education apps are used by teachers, parents, and students to support learning. Apps can help teachers manage classrooms, communicate with parents and students, and help students study or explore new topics. The use of education apps to support learning also increased during the pandemic when in-person schools were temporarily closed. Outside of the classroom, apps have also helped people of all ages learn new languages and new skills.
- **Connected home devices:** The App Store has also enabled a new generation of physical products like smart thermostats, doorbells, locks, baby monitors, and light bulbs, which make users' homes more comfortable, functional, and secure. Users' ability to remotely control these devices or view the data they collect via apps has greatly improved their utility.
- **Civic engagement:** Governments increasingly rely on apps to facilitate interactions with citizens. For example, apps allow citizens to report non-emergency issues, check the schedule of trash pickup, find federally funded health centers, or apply for assistance after an emergency. During the COVID-19 pandemic, public health authorities created apps to track exposure through the Exposure Notifications APIs developed by Apple and Google, and to provide citizens access to COVID-19 screening tools and information, among other features.



**Connected home devices**

The market for connected home devices has grown quickly over the last five years.<sup>ix</sup> In 2022, categories of connected home devices that typically rely on apps to control, and sometimes use, the device and view data generated \$49 billion in global revenue.<sup>x</sup> These devices include security devices like **Ring** and smart camera, home entertainment devices like **Sonos**, energy management tools like **Nest**, and comfort and lighting tools like GE's smart light bulbs controlled by the **Cync** app.

The growth of connected home devices has been a global phenomenon: For example, \$13 billion in revenue came from Europe in 2022.<sup>xi</sup> Global manufacturers of connected home devices include **Siemens**, a multinational corporation headquartered in Germany that offers a suite of connected home devices controlled via an app; **Arkifi**, a Chilean-based company offering smart locks; and **tado°**, a German-based company producing smart thermostats.

**Supporting users' everyday health**

Users can find thousands of apps on the App Store to help them adopt healthier lifestyles. Many of these apps take advantage of Apple's HealthKit API, which allows the use of sophisticated sensors on iPhone and Apple Watch, while ensuring that user data is safe according to Apple's rigorous privacy and data security protocols. In addition, there are an increasing number of connected devices that work alongside HealthKit-enabled apps. Popular consumer-targeted health apps include:

- Running apps like **Nike Run Club**
- Fitness apps like **MyFitnessPal**
- Sleep apps like **Rise: Energy & Sleep Tracker**, **SnoreLab**, and **Pillow**
- Meditation and mindfulness apps like **Calm**, **Headspace**, and **Ten Percent Happier**
- Hearing-related apps like **SonicCloud**
- Nutrition apps like **WeightWatchers** and **Lose It!**
- Medication and symptom tracking apps like **Pt Pal Pro** and **Medisafe Medication Management**
- Apps that work alongside connected devices like **Qardio heart health** to measure blood pressure, **Withings Health Mate** to measure weight, and **ReSound** to work alongside hearing aids



Examples of apps that provide new ways to engage with customers



**United Airlines (US, 2011)** United Airlines' app allows users to book flights, access in-flight entertainment, pay for in-flight snacks and drinks, check in for flights and download boarding passes, track baggages, and more.



**USAA (US, 2009)** United Services Automobile Association was one of the first financial service companies to offer mobile check deposit using iPhone's camera.



**John Lewis & Partners (UK, 2011)** is a department store app that allows users to browse products, use augmented reality features to "try before you buy," and get notifications when products are back in stock.

## *New ways to engage with customers and to lower costs*

**Many traditional businesses have used apps in innovative ways to improve their customer experiences and/or provide their services more efficiently.** For example, airlines have developed apps that provide an ever-growing array of features for their customers. Through apps, users can conveniently store and access mobile boarding passes, check flight status, modify reservations, receive gate and baggage updates, access the plane's entertainment system, and more. Some of these features have reduced costs as well, such as the cost savings from phasing out in-flight entertainment system screens or printing paper boarding passes.<sup>xii,xiii</sup>

Similarly, banks have developed apps that facilitate mobile check deposit using the phone camera, send fraud alerts, and allow customers to quickly check balances or transfer money. The extra convenience for consumers has also led to lower costs for banks from the reduction in in-person visits to physical branches.<sup>xiv</sup> Supermarket apps allow consumers to order items on the go, check savings and deals, look up store maps and aisle locations, scan items for prices, and pay directly through the app.

**App-based innovations also extend to cultural and recreation activities:** Visitors to art museums can now use mobile apps to take a wide variety of self-guided tours or listen to audio descriptions of individual artwork that catch their attention. Theme parks have apps that allow visitors to view wait times for popular rides, navigate the park, and view activity schedules. Many ski resorts now offer apps that allow visitors to check real-time weather conditions and forecasts, get updates on lift closures, and view trail maps.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

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### Innovations from healthcare providers and the medical community

Healthcare providers and the medical community use apps to deliver cutting-edge care to patients and conduct groundbreaking research. These apps include:



**Epic Rover**, which helps manage clinical communication by pairing iPhones with patient charts and has a scanning feature to streamline the administration of medication.



**StrivePD**, which uses Apple's Movement Disorder API to help measure and record tremors and muscle movements associated with Parkinson's disease.



**Butterfly iQ+**, a handheld ultrasound device that was built using Apple's developer tools and has expanded access to ultrasound imaging.



Epic's **MyChart** app, which is integrated with HealthKit and paired with third-party medical devices (for example, blood pressure cuffs and glucose monitors), and provides digital medicine programs for patients with hypertension and diabetes.



**One Medical**, which allows patients to participate in telehealth video appointments in the app, schedule visits, message with providers via video or chat, manage prescriptions, and view health records.



**Apple Research**, built on the ResearchKit framework, which is broadening the scope of possibilities for researchers while maintaining complete control over data sharing for participants.

## The need to encourage platform usage on both sides

Scholarship in economics and business strategy shows that **digital marketplaces create value by facilitating interactions between different sets of users.**<sup>xv</sup> The App Store, a digital marketplace, makes it easier for Apple iOS device owners and developers to interact. This means that the App Store has the incentive to bring both sides on board and encourage their interactions.<sup>xvi</sup> Apple benefits if iOS users have more positive experiences downloading and using apps, and if developers have the tools and support from Apple to create better apps.

**To succeed, digital marketplaces need to actively manage the interactions between developers and iOS users and create trust to ensure continued participation from both sets of users.**

To do so, digital marketplaces rely on technology, processes, and policies to improve the quality of interactions on the platform.<sup>xvii</sup> This is an iterative process that requires work and investment, adjusting to changing conditions, and incorporating new technologies as they become available.

Apple's focus on device owners and developers contributes to making the App Store a vibrant marketplace with over **650 million average weekly visitors**, and over 747 million and 1.5 billion average weekly downloads and redownloads, respectively.

### 1.7m

App Store submissions rejected in 2022

### \$5b+

in fraudulent transactions prevented since 2020

### 950,000+

apps rejected for privacy violations since 2020

### 690m+

fraudulent customer accounts deactivated since 2020

### Apple device owners: Providing a safe, secure, and private platform for users to discover new apps

**Trust and safety have been central to the growth in app downloads and usage over time.** Compared to the early 2000s, when downloading software always came with the risk of infecting the device with a virus or becoming victim to a scam, the App Store has brought peace of mind to users downloading apps. Apple's unique approach integrates hardware, software, and other services, such as safe payment options, to provide users with a secure and private experience to discover and enjoy new apps. Apple's policies and rules, for example for App Review, ensure the App Store remains a safe marketplace.

**Apple has heavily invested in the development of policies to foster user trust and the deployment of resources to enforce them.** Many of these rules apply even before apps are released on the App Store. Before submitting new apps for review, Apple requires developers to provide detailed information about how the apps, and any third-party products integrated into the apps, deal with privacy and user data. Once developers submit their apps, Apple's screening mechanisms ensure that apps and all in-app content meet the App Store Review Guidelines, are periodically updated, and do not represent a privacy risk for users. Additionally, automatic app updates make it easy and seamless for users to have the latest and safest app versions. Apple has also developed multiple mechanisms to remove bad actors and prevent fraud on the App Store, including by removing fraudulent reviews, removing fraudulent users and developers, and preventing payment and credit card fraud.



## The Continued Growth and Resilience of Apple's App Store Ecosystem

**Support for students**

through programs such as "Everyone Can Code," "Develop in Swift", and "Swift Playgrounds"

**Support for new developers**

through Developer Academies and Apple-certified trainings

**Support for iOS entrepreneurs**

through Entrepreneur Camps, App Accelerators, and developer workshops around the world

Our 2021 study, "[A Global Perspective of the Apple Ecosystem](#)," provides more details on how Apple supports developers.

**Serving Developers: Tools to foster success**

**Apple's continual investments in the iOS ecosystem facilitates the development and discovery of new apps, gives developers the ability to add new functionality to their existing apps, and provides access to metrics to track app usage.**



Since 2008, Apple has released over **40 SDKs and 250,000 APIs** for developers, including HealthKit (2014), which provides a secure option to create apps based on user health data, and the Metal API, which can improve running time and be used to create state-of-the-art 3D designs for games. Technical tools like **Xcode** and **Swift** (2014) lower the technical barriers to design, and make it easier to debug and optimize apps. And testing tools such as **TestFlight** (2014) connect developers and users during the app's testing phase. Apple also provides developers with the option to collect data on app performance, which can inform improvements to their apps.



Apple's **App Analytics tools**, such as "Peer Group Benchmark," allow developers to track the performance of their apps by monitoring downloads, active sessions, paying users, and in-app content.

The App Store gives developers **multiple alternatives to monetize their apps**, including by offering subscriptions and/or employing different business models (free, freemium, paid, paymium). It also supports **many payment methods**, including payments in local currencies, carrier billing (which allows users to pay developers through their monthly phone bill), Apple Pay, and other methods that leverage third-party companies.

**73**

storefronts where Apple offers the option to pay in local currency

**50**

storefronts that offer carrier billing, including O2 in Germany (2015), BYT in France (2017), Optus in Australia (2019), and WOM Nextel in Chile (2022)

**26**

storefronts that offer third-party electronic wallets including Alipay in China (2016), Kakaopay in Korea (2019), and Dana in Indonesia (2020)

Thanks to the App Store, developers can seamlessly distribute their apps around the world and make sure users discover their apps. **The App Store facilitates on average more than 747 million app downloads, 1.5 billion redownloads, and 40 billion automatic app updates each week.** The App Store's global marketing team, editors, and the "Today," "App of the Day," and "Game of the Day" features are examples of how Apple helps developers drive discovery of their apps.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

## Appendix

**Appendix Table 1: Breakdown of Where Apple Collects a Commission on Billings and Sales Facilitated by the App Store**

Billings and Sales Facilitated by the App Store Ecosystem: \$1,123 Billion	
No commission: More than 90%	
Commission: Less than 10%	
<p>Apple does not collect a commission on:</p> <ul style="list-style-type: none"> <li>■ <b>Digital goods and services</b> that are purchased <i>outside</i> of the App Store, for example: <ul style="list-style-type: none"> <li>* Subscriptions to multiplatform video streaming apps like Hulu</li> <li>* Subscriptions to audiobook apps like Audible</li> <li>* Subscriptions to music streaming apps like Spotify</li> <li>* Subscriptions to news and magazine apps like the NY Times</li> </ul> </li> <li>■ <b>Physical goods and services</b> ordered within-app, for example: <ul style="list-style-type: none"> <li>* Ordering a ride through the Uber app</li> <li>* Placing an order on the Amazon app</li> <li>* Ordering grocery delivery through Instacart</li> <li>* Transaction fees on digital payments occurring through apps</li> </ul> </li> <li>■ <b>In-app advertising</b> for apps that make money through in-app advertising, for example: <ul style="list-style-type: none"> <li>* Non-gaming apps like Pinterest and YouTube</li> <li>* Gaming apps like Rolly Vertex and Helix Jump</li> </ul> </li> </ul>	<p>Apple collects a commission on:</p> <ul style="list-style-type: none"> <li>■ <b>Digital goods and services</b> that are purchased <i>in or through</i> the App Store, for example: <ul style="list-style-type: none"> <li>* In-app subscriptions to multiplatform video streaming apps like Hulu</li> <li>* In-app subscriptions to education apps like Duolingo</li> <li>* In-app purchases of a game's bonus features</li> <li>* In-app subscriptions to news and magazine apps like the NY Times</li> </ul> </li> </ul>

**Appendix Table 2: Estimated Billings and Sales Facilitated by the App Store Ecosystem, Large Regions, 2021 (\$ Billion)\***

	US	China	Europe****	Rest of the World	Total
Digital Goods and Services**	\$38	\$20	\$11	\$33	\$102
Physical Goods and Services	\$153	\$344	\$91	\$90	\$678
M-Commerce					
General Retail	\$86	\$273	\$60	\$52	\$471
Travel	\$17	\$13	\$12	\$14	\$56
Food Delivery and Pickup	\$20	\$26	\$9	\$11	\$66
Grocery	\$8	\$21	\$5	\$8	\$43
Ride Hailing	\$17	\$7	\$5	\$5	\$33
Digital Payment	\$4	\$5	-	-	\$9
In-App Advertising***	\$41	\$17	\$14	\$16	\$88
<b>Total</b>	<b>\$232</b>	<b>\$381</b>	<b>\$116</b>	<b>\$139</b>	<b>\$868</b>

\* Totals may not sum due to rounding.

\*\* Billings and sales from digital goods and services are not the same as App Store billings.

\*\*\* iOS in-app ad revenue; does not include mobile web, search ads, and Apple Search ads.

\*\*\*\* Europe includes countries in Western, Central, and Eastern Europe (including the UK and the Nordic Region, not including Russia).

### Methodological approach

To arrive at our results, we distinguish among three primary app monetization strategies that developers use:

- **The first monetization strategy is to sell and distribute digital goods and services.** Sales and distribution of digital goods and services can occur through the App Store in the form of paid app downloads and in-app purchases, or through the sale of digital content and subscriptions from multi-platform apps that allow for the use and consumption of the app, both on the App Store ecosystem and elsewhere. Examples of apps using this monetization strategy include those for gaming, dating, video and music streaming, fitness and health, and news and magazines.
- **The second monetization strategy is to sell physical goods and services through the app.** Apps using this monetization strategy are m-commerce apps generally, including apps for ride hailing, food delivery and pickup, grocery delivery and pickup, general retail, and travel, as well as digital payment apps.
- **The third monetization strategy is to sell in-app advertising.** Examples of apps using in-app advertising as their primary monetization strategy are social media and short video sharing apps.

We employ different methodologies to estimate billings and sales facilitated by the App Store ecosystem for each of these monetization strategies. In so doing, we rely on a variety of data sources, including data from Apple, app analytics companies, market research firms, and individual companies. To ensure the reliability and robustness of our estimates, we validate and compare key inputs from different data sources.<sup>4</sup>

We are continually working to improve on our methodology and to adjust for changes in underlying third-party data. As a result, estimates and changes seen throughout this report may differ from those presented in previous years' reports. Where and when applicable, we have made note of reliance on updated estimates.

### Sales and distribution of digital goods and services

Apps used to sell and distribute digital goods and services fall into two subcategories:

- Certain app developers choose to monetize their iOS apps only through the App Store, and those apps can only be used on the iOS platform.<sup>5</sup> Most billings from these apps come from games, which involve a one-time payment or, more often, in-app payments that allow app users to remove ads, unlock bonus levels, or access premium features.<sup>6</sup> This category also includes most photo-editing apps and dating

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4 This methodological approach is consistent with the one used in our 2019 and 2020 App Store ecosystem studies.

5 Developers may also offer the same digital goods and services through apps on other platforms, such as Android.

6 Our analysis does not include billings generated from the Apple Arcade gaming service. Apple Arcade provides participating developers with an additional business model – distinct from the App Store – in which Apple supports the development costs of Apple Arcade games. Many small and independent developers with games in Apple Arcade also monetize with other free-to-play or paid games on the App Store.

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## The Continued Growth and Resilience of Apple's App Store Ecosystem

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apps, as well as apps for short video, among others.

- Other apps allow for the consumption of digital goods and services both within the App Store ecosystem and elsewhere. These so-called multi-platform apps allow consumers to pay through either the App Store or another platform or device. In other words, consumers use non-device-specific subscriptions or purchases to enjoy the digital goods and services provided. Multi-platform apps can be further divided into consumer apps and enterprise apps.
  - **Consumer apps** typically offer paid digital content – such as movies, music, audiobooks, news, meditation courses, and fitness classes – that can be consumed within the app. Moreover, they may offer paid digital services obtained on the app, such as educational services, password management, job search, and access to job platforms.
  - **Enterprise apps** allow businesses and organizations to provide tools and capabilities through smartphones and tablets. These include communication and collaboration apps, mobility management solutions, cloud-based business apps, and file hosting services. These apps usually make money by selling subscriptions to corporations and institutions outside of the App Store.

To distinguish between these two subcategories of apps, we manually review the most popular apps in each App Store category, focusing on their business models and monetization strategies. We use this information to ascertain (1) whether the app can be used on mobile or computer browsers, or on a different app platform; and (2) whether an app on an Apple device can be used through a subscription or purchase made outside the App Store.

### ***Methodology for iOS apps that sell only through the App Store***

For iOS apps that sell digital goods and services only through the App Store, we count total billings, which include Apple's commission.<sup>7</sup> We use billings because they represent the total amount customers pay.

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<sup>7</sup> In 2022, Apple's commission rate was 30% for the sale of digital goods and services; for subscriptions, it was 30% for the first year and 15% for any subsequent years. Developers who made up to \$1 million in 2021 for all of their apps, as well as developers new to the App Store, qualify for the Small Business Program and pay a reduced commission of 15%.

***Methodology for multi-platform apps***

**Background.** For multi-platform apps, estimating the volume of sales facilitated by the App Store is complex because subscriptions and purchases associated with them are not device specific. The lack of device-specificity creates a dual challenge:

- First, consumers can pay to access multi-platform digital goods and services in different ways, regardless of where they consume those goods and services. In some cases, consumers pay through the App Store, but sometimes they do not.
- Second, multi-platform apps allow users to access content and services across different devices, including non-Apple devices. For example, consumers can stream videos through smart TVs, connected TV devices, video game consoles, smartphones, tablets, and web browsers, and across different platforms (Apple, Android, etc.).

Because of these two characteristics of multi-platform apps, billings that flow through the App Store are not necessarily a reliable indication of Apple users' engagement with multi-platform apps. Consequently, we must be deliberate about attributing the appropriate share of billings and sales to the App Store ecosystem.

**Example.** To illustrate these challenges, consider the video streaming service Hulu. The Hulu app is free to download, but a subscription is necessary to watch content on the iPhone, iPad, and Apple TV apps. A Hulu subscription can be purchased in one of two ways:

- Through the Hulu app on an Apple device, in which case the purchase happens through the App Store. But a subscription purchased through the App Store can also be used to watch Hulu on other platforms. Consequently, it would be incorrect to attribute all of the App Store billings (the full subscription amount) to the App Store ecosystem because it would overstate the value of the Hulu product enjoyed on Apple devices specifically.
- Outside of the app (on a Mac or PC via web browser, for example), in which case the purchase does not happen through the App Store, and there are no App Store billings. However, the subscription can be used to watch content on Hulu using apps on Apple devices. Consequently, it would be incorrect to use the App Store billings (which are zero) as an input to our App Store ecosystem results, because it would understate the value of the Hulu product enjoyed through apps on Apple devices.

**Methodology.** To address these challenges, we generally do not rely on App Store billings for multi-platform apps. Instead, we rely on the proportion of use that occurs on apps in the App Store ecosystem to estimate how much of the total sales of multi-platform apps (App Store plus non-App Store) is facilitated by the App Store ecosystem.

### The Continued Growth and Resilience of Apple's App Store Ecosystem

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Consider, for example, not just Hulu but the entire video streaming industry, a market with more than \$30 billion in total annual sales in the US in 2022.<sup>xviii</sup> Users consume video streaming content over a mix of smartphone apps, tablet apps, desktop browsers, smart TVs, connected TV devices, and video game consoles. To estimate the volume of sales facilitated by the App Store ecosystem, we first take the portion of hours streamed on smartphone apps, tablet apps, and smart TVs of all types. We then apportion this share to Apple devices specifically, using the Apple market share for each device category.

Using this framework and approach, we estimate the volume of sales facilitated by the App Store ecosystem for several categories of apps offering similar types of goods and services. The app categories for which we estimate sales facilitated by the App Store are video and music streaming, e-books and audiobooks, newspapers and magazines, and enterprise. We use third-party research to account for the variation in users' app consumption habits across categories and countries. For example, consumers often listen to music and audiobooks through apps on mobile devices, while they are more likely to stream videos on smart TVs. Those consumption habits may also vary by geography. Additionally, when the data are available, we take into account any variation in the consumption patterns of iOS (and non-iOS) users by app type and geography.

For each app category, we estimate total sales by geography by relying on inputs from third-party sources, typically market research firms.<sup>xix</sup> We then apportion those sales using the share of content consumed on apps on any platform by geography, based on information collected from marketing surveys, company reports, or data on usage patterns.<sup>xx</sup> Finally, we apportion usage to Apple iOS devices specifically by using the iOS market share for each device category in each geography.<sup>xxi</sup>

We use a more tailored approach for enterprise apps for a number of reasons. First, usage patterns are more heterogeneous for enterprise apps. Second, app-based usage and desktop-based usage of enterprise products tend to be more integrated. Third, the pricing of enterprise products is less transparent and more complex than for consumer apps.

With these complexities in mind, we individually estimate sales from 10 major enterprise apps or families of apps; Microsoft Office 365, Google Workspace (i.e., enterprise versions of Google productivity tools such as Gmail and Google Docs), Adobe (Acrobat), WPS Office, Dropbox, Box, Baidu Drive, Webex, Zoom, and Slack. We also include an aggregate market-level estimate for mobility management apps, which allow employees to securely access business content.

Finally, for some categories of apps, we use billings from the App Store as a proxy for sales facilitated by the App Store ecosystem. We do this for categories of apps, such as education or fitness apps, for which consumers typically consume the content within the app but may purchase it outside of the App Store. This methodology likely results in a conservative (or lower) estimate compared with an estimate relying on usage-based apportionment.

### *Sales of physical goods and services through the app*

Many developers monetize their apps by selling physical products through their apps.

These include:

- Apps that let customers **purchase physical goods and services**. We broadly refer to these as m-commerce apps. The group includes apps for general retail, ride hailing, food delivery and pickup, grocery delivery, and travel.
- Apps that enable **digital payments or transfers**, such as mobile point-of-sale apps that rely on QR codes and peer-to-peer transfer apps.

### ***M-commerce***

Globally, mobile apps are an increasingly important e-commerce channel due to their convenience. This growth has been most pronounced in China, the leader in m-commerce.<sup>8</sup> Apps of retailers such as Amazon and Target allow consumers to browse and purchase physical goods directly in the app and offer in-store pickup or delivery. In addition, mobile apps – including those for ride hailing, food delivery and pickup, grocery delivery and pickup, and mobile pickup ordering – have been central to the creation or expansion of certain business models.

Sales on m-commerce apps do not flow through the App Store.<sup>9</sup> We therefore use third-party data to estimate the volume of sales of physical goods and services from transactions on mobile apps.<sup>10</sup> We provide results for several categories of apps: general retail, food delivery and pickup, travel, grocery, and ride hailing.

For many of our m-commerce categories, we rely on Statista's Digital Market Outlook and Mobility Market Outlook data for online sales revenue. In 2022, Statista updated their methodology to estimate industry revenues to use current exchange rates, rather than fixed exchange rates, with the goal of being more accurate. As a result, their 2019, 2020 and 2021 estimates were retroactively updated.

For each app category, we estimate the total volume of e-commerce or m-commerce sales by geography, relying on estimates of third-party sources, typically market research firms.<sup>xxii</sup> We then apportion the volume of sales, if necessary, to purchases that occur via smartphone and tablet apps. For example, for online food delivery and pickup, customers may place orders via an app, a mobile browser, or a desktop browser. We estimate the share of each app category's sales that occur via mobile apps, within each geography,

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8 In China, more than 80% of online retail is mobile. Additionally, most mobile commerce occurs through apps and to a lesser – but increasing – extent through “mini-programs” on platforms such as WeChat, Baidu, and Alipay. See, eMarketer; QuestMobile, “China Mobile Internet 2019 Half Year Report”; Aladdin, “2019 Mini-Programs White Papers,” January 2, 2020.

9 Since the launch of the App Store, Apple's policy has been to not charge a commission on sales of physical goods and services or advertising.

10 The sales associated with purchases made on mobile browser apps are excluded.

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## The Continued Growth and Resilience of Apple's App Store Ecosystem

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using information collected from marketing surveys or data on usage patterns.<sup>xxiii</sup> Finally, we apportion usage to Apple platforms based on the overall iOS share market share.<sup>11,xxiv</sup>

### **Digital payments**

Digital payment apps have become increasingly popular worldwide, although the landscape differs substantially across countries. In China, currently the largest market for digital payments, two QR code-based payment apps, Alipay and WeChat Pay, dominate both online and brick-and-mortar points of sales. These apps charge merchants a fee on purchases paid for with their apps. In the US, app-based payment systems are a relatively nascent market<sup>xxv</sup> while peer-to-peer transfer apps such as Venmo and Cash App are already popular and have grown significantly in recent years.<sup>xxvi</sup> In this year's study, we also consider India's growing digital payment market driven by PhonePe; however, they remain significantly smaller than the US and China.

We estimate the transaction fees collected by developers from customers or merchants for payments and transfers occurring through apps on the iOS platform.<sup>12</sup> For QR code-based payment apps in China, we start with an estimate of total payment volume (TPV) from a third-party research firm.<sup>xxvii</sup> We then estimate WeChat Pay and Alipay total transaction fees using their published fee rates and deductible policies. For peer-to-peer transfer apps in the US, we use the ratio of total transaction fees to TPV from Venmo and Cash App to estimate the transaction fees collected by the apps. For digital payment apps in India, we start with a third-party estimate of total transaction value of digital payments,<sup>xxviii</sup> as well as PhonePe's revenue and market share to back-out the total fees and average fee rate generated from digital payments. Finally, we apportion usage to Apple platforms based on data on the overall iOS share in each region.<sup>xxix</sup>

### **In-app advertising**

In-app advertising is a frequently used and effective method of monetizing apps whereby developers publish advertisements within their apps. Prominent examples of apps that primarily make money through in-app advertising are Instagram, Twitter, YouTube, and Pinterest, and Sina Weibo in China. Examples of games are Rolly Vortex and Helix Jump. These apps tend to be free to download and use, but in-app advertising can also be a complementary monetization strategy for paid apps or apps with in-app purchases.

Users have been spending more and more time on their mobile devices, particularly using apps, which has led to an increased share of digital marketing expenditures going toward in-app advertising. Given that apps are used frequently throughout the day – for example, during commutes or moments of downtime – in-app advertising allows advertisers to reach users in ways that other marketing channels cannot. Compared with mobile web,

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11 Apportioning by iOS market share almost certainly results in a conservative estimate because owners of iOS devices tend to spend relatively more than owners of Android devices. See, e.g., Comscore.

12 Our study excludes digital payment apps and services based on near-field communication, such as Apple Pay. Mobile commerce transactions that occur within an app and are paid with Apple Pay are included in m-commerce sales.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

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the app environment is a more effective way for advertisers to reach their audiences, with in-app advertisements allowing for personalized and contextually relevant ad messages.

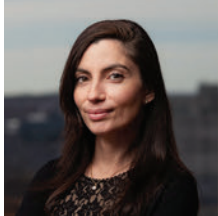
Technology research firm Omdia estimated that in-app ad sales for iOS apps were \$109 billion in 2022, with almost \$27 billion (25%) tied to gaming apps.<sup>xxx</sup> This estimate includes revenue generated from the publishing of advertisements within apps only, and excludes advertising on mobile web (including mobile browser apps), search advertising, and Apple Search Ads. Omdia derived this estimate based on ad sales reported by large digital advertising firms, and then used data analytics from mobile ad platforms to apportion the iOS share, limited to in-app advertising only (i.e., by removing mobile web advertising), and to adjust for ad price differences between the iOS and Android app platforms. We use Omdia's research in this study. In 2021, Omdia considerably remodeled their historical estimates to account for the display advertising market. In all years, we use Omdia's retroactively updated estimates.

### *Additional dimensions not included in our estimates*

The App Store has also made it easier and more secure for consumers to sign up for subscriptions and make purchases of digital goods and services. This may lead to incremental sales for app developers regardless of the platform chosen by users to consume the digital goods and services. Apps have also allowed traditional firms and industries to expand their offerings of a wide range of products via connected devices – devices that typically require the use of apps to control and monitor them. The App Store has enabled a new generation of home devices like smart thermostats and doorbells, for example, as well as new possibilities for health like connected blood pressure cuffs, smart scales, and even hearing aids.



## About the authors



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**Analysis Group** is one of the largest international economics consulting firms, with more than 1,200 professionals across 14 offices in North America, Europe, and Asia. Since 1981, Analysis Group has provided expertise in economics, finance, health care analytics, and strategy to top law firms, Fortune Global 500 companies, and government agencies worldwide.

## The Continued Growth and Resilience of Apple's App Store Ecosystem

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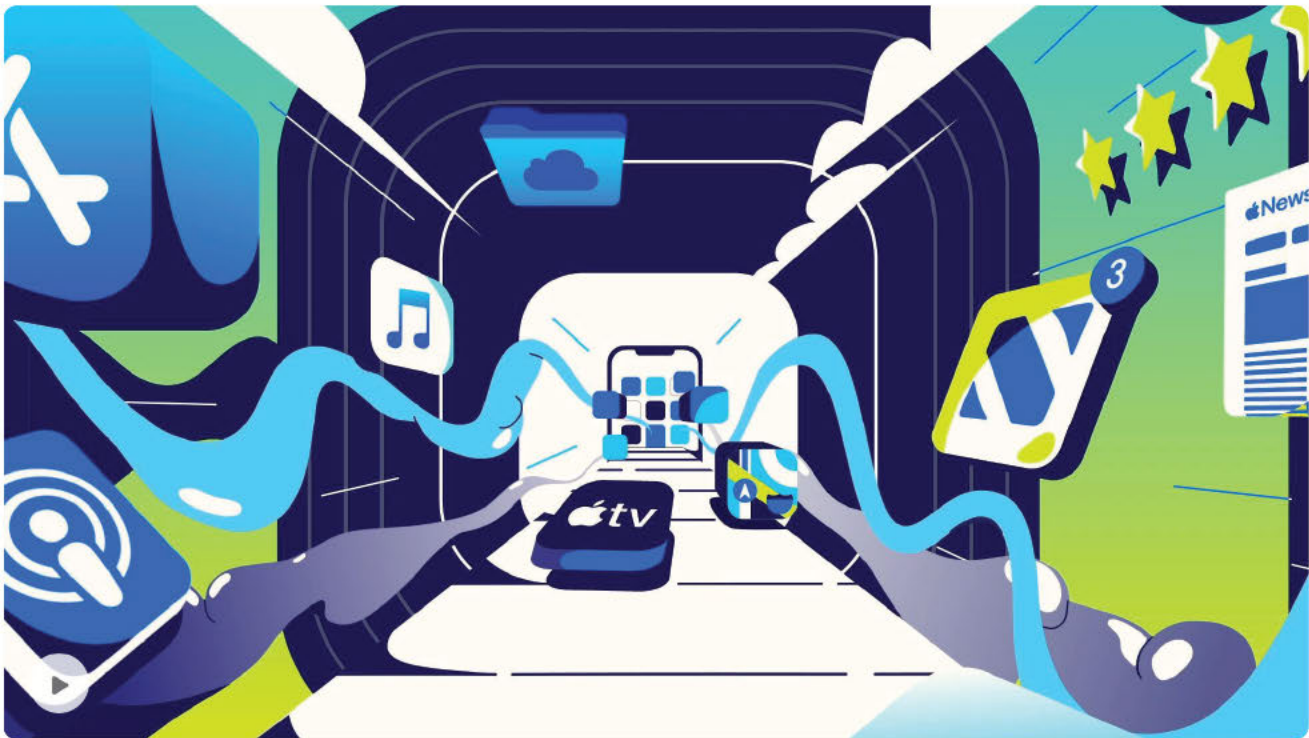
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# EXHIBIT 4

UPDATE  
January 10, 2022

# Apple services enrich peoples' lives throughout the year

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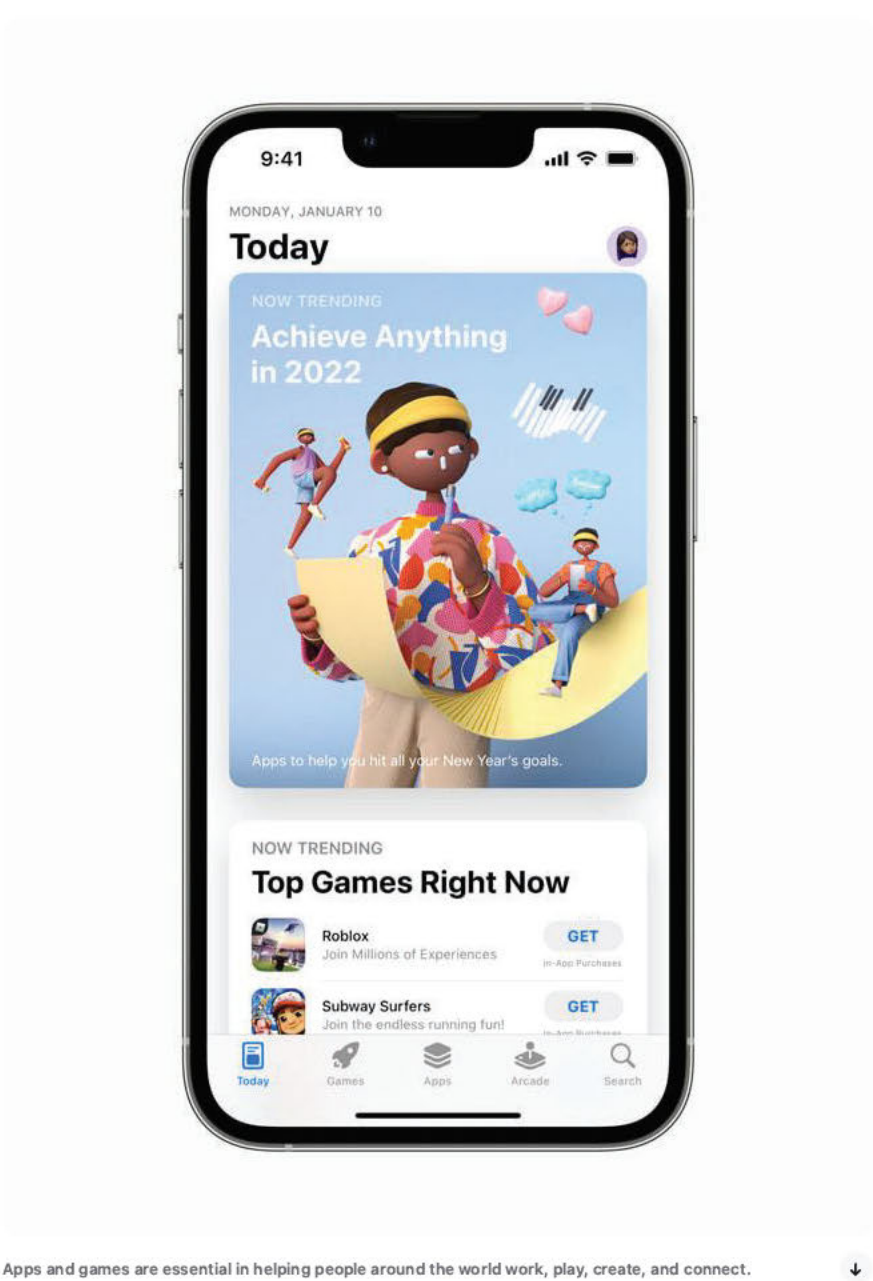
In 2021, Apple's services helped deliver innovative apps, powerful content, and transformative experiences that enrich users' lives around the world in more ways than ever before.

Apple Fitness+ coached users to stretch, lift, lunge, and meditate their way to healthier days; Apple News kept them informed of pivotal developments in the news and culture; and users started to reexplore the world using the beautiful new Apple Maps. Dozens of groundbreaking originals from Apple TV+ were streamed with family and friends near and afar using SharePlay; hundreds of fun, new and classic games were played on Apple Arcade; and millions of apps were downloaded from the App Store, unlocking powerful ways to communicate, collaborate, and connect. Podcasts like "The Midnight Miracle" and "We Can Do Hard Things" uplifted listeners, books like "The Least of Us" and "The Love Hypothesis" moved readers, and when the sun set at the end of each week, and

the Work Focus switched off, it was time to celebrate with the Apple Music Award-winning... "ladies and gentlemen, The Weeknd."

"Apple's world-class portfolio of services proved essential in 2021, as people worldwide sought new ways to keep entertained, informed, connected, and inspired," said Eddy Cue, Apple's senior vice president of Services. "With over 745 million paid subscriptions, Apple continues to connect the world's developers, artists, and storytellers with users across more than a billion devices, delivering powerful tools, content, and experiences that enrich their lives in profound ways every day."

Now it's time to reflect on the best of 2021 and look ahead to some of the great new games, music, movies, TV shows, workouts, stories, podcasts, books, guides, and other experiences that await customers in 2022.



Apps and games have become the essential source for the world's most innovative and timely entertainment. The efforts, innovation, and creativity of the

developers who leverage Apple technology to build these incredible experiences, coupled with the power of the **App Store's** global platform to connect businesses of all sizes with over 600 million people each week across 175 countries, has led to developers selling digital goods and services earning more than \$260 billion since the App Store launched in 2008. This significant number sets a new yearly record for App Store developer earnings while representing just a small fraction of the [overall commerce](#) the App Store facilitates, serving as one meaningful marker of how the ecosystem continues to create opportunities and drive economic expansion for entrepreneurs around the world. This holiday season alone, App Store customers spent more than ever before between Christmas Eve and New Year's Eve, driving double-digit growth from last year.

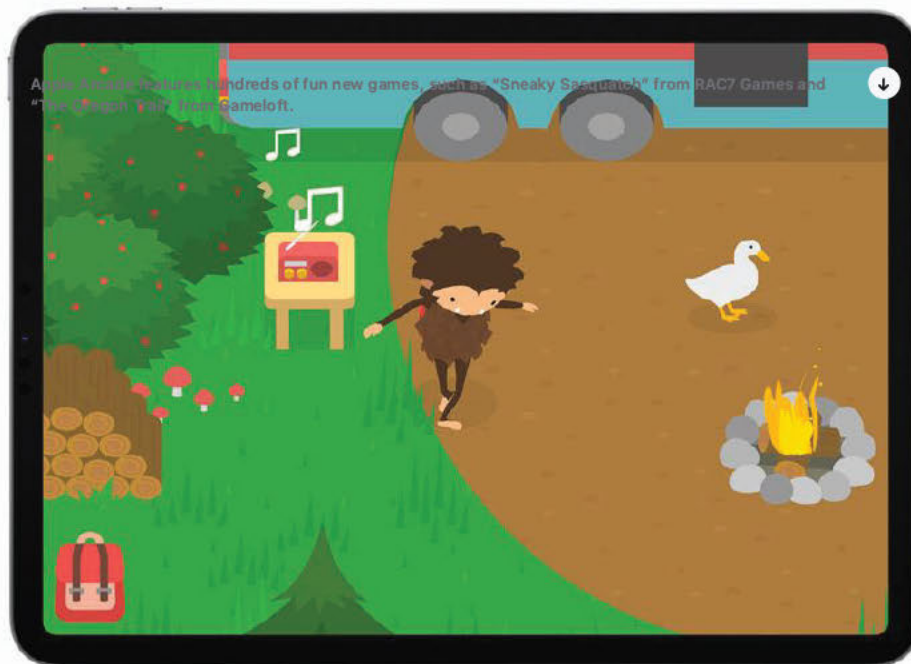
2021 brought a slate of blockbuster launches to the App Store, with the world's leading entertainment companies choosing to premiere marquee movies like "Black Widow" from Disney+ and "Space Jam: A New Legacy" from HBO Max in-app on the same day as their theatrical release. And in October, the App Store launched In-App Events, timely events within apps and games such as game competitions, movie premieres, livestreamed experiences, and more. Standout moments from just the last few months included in-game events like "The Champions Have Arrived!" in "Clash Royale," "Space Tour" in "Mario Kart Tour," and "Pokémon GO Halloween Mischief" in "Pokémon GO," while popular events such as TikTok's "Stranger Things Watch Party" and ESPN's "Man in the Arena: Tom Brady" drew in-app crowds.

Whether through games that exploded onto the scene to become global sensations like "Royal Match" from Istanbul's Dream Games, or social apps like Clubhouse, which opened up fascinating conversations to everyone this summer, many of the year's most popular apps and games found new and creative ways to bring people everywhere together. Apps like Bumble and EatOkra were recently honored among the [2021 App Store Awards](#) winners for delivering best-in-class app experiences, embodying the year's trend of connection.

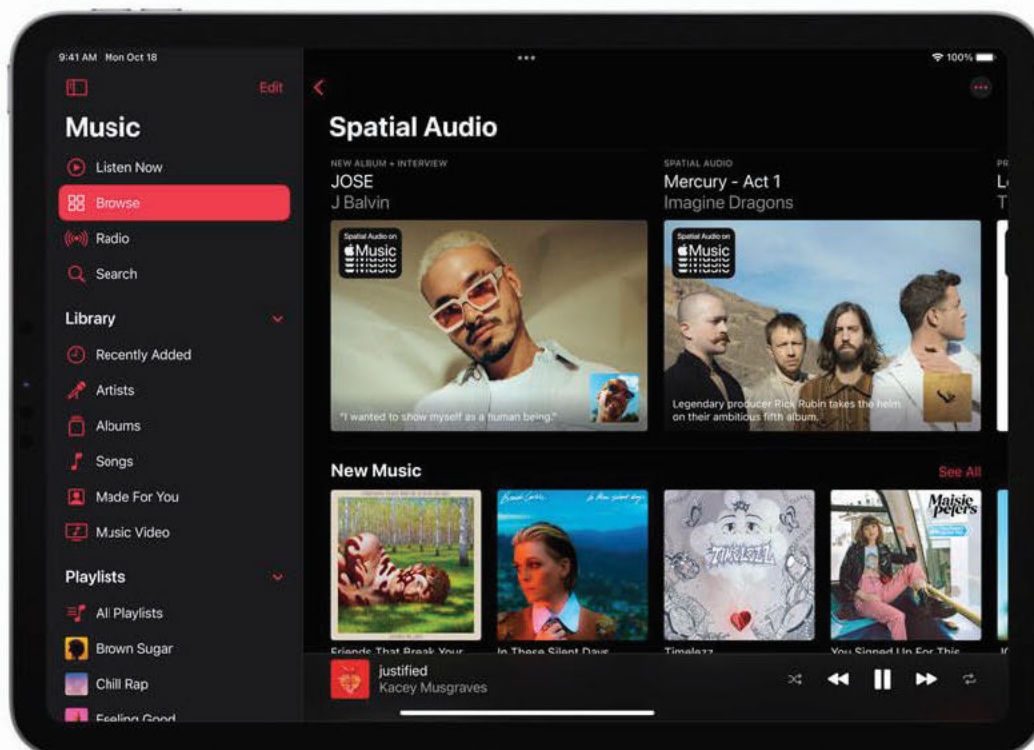
Lists of the year's most downloaded [apps](#) and [games](#) are available on the App Store.







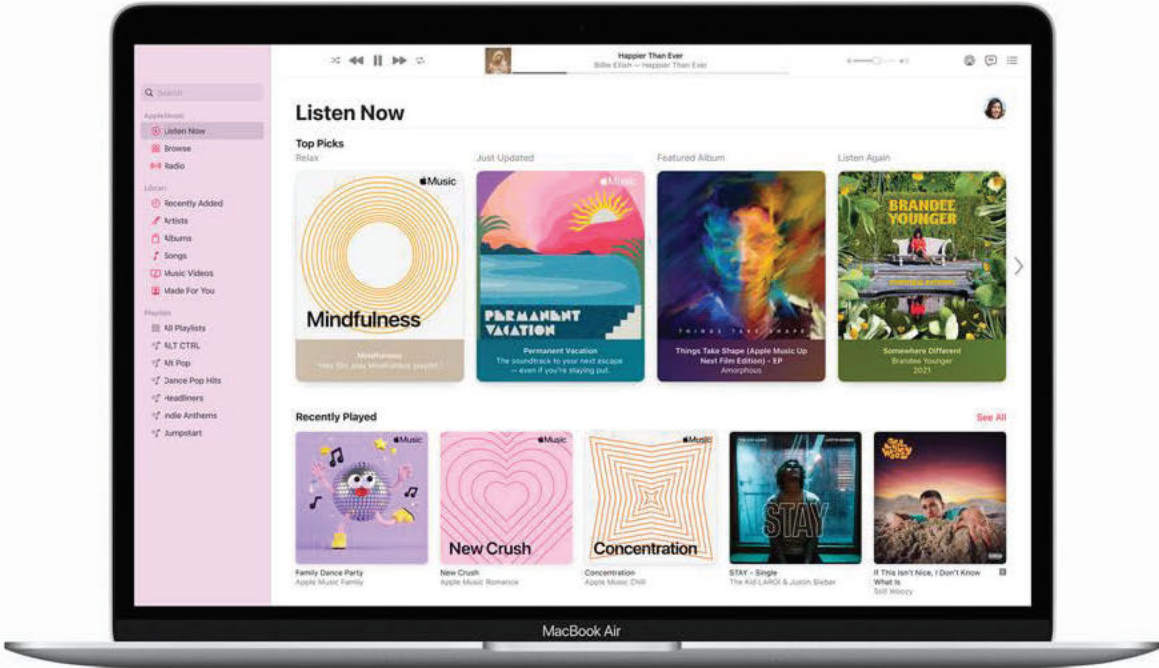
shared with up to five family members using Family Sharing with just one all-inclusive subscription. This year, players can look forward to the release of new, highly anticipated games, including "[Nickelodeon Extreme Tennis](#)," and enjoy new content updates added weekly.



Apple services enrich peoples' lives throughout the year. Apple  
 Listen to tens of thousands of songs in spatial audio with Dolby Atmos for a truly immersive audio experience.

2021 was a year of innovation for **Apple Music**, providing subscribers with remarkable new releases, original content, and product features that transformed the experience of discovering and enjoying music from all over the world. Apple Music offers listeners one of the largest music catalogs ever, now featuring over 90 million songs all available in lossless audio, so that fans can hear music the way artists created it. Spatial audio with Dolby Atmos and support for dynamic head tracking have ushered in the next generation of sound, providing artists the ability to deliver immersive audio experiences with exceptional clarity, while bringing listeners deeper into their all-time and new favorite songs.

New features including autoplay, lyrics share, city charts, motion cover art, enhanced search, Shared with You, and the redesigned Listen Now tab make the experience of discovering music a delight, while Apple Music TV on the Apple TV app, Apple Music in Apple News, and support for Apple Music across FaceTime with SharePlay, Apple Fitness+, and Memories in Photos extend the experience across the Apple ecosystem.



Play your favorites and discover personalized recommendations of albums, playlists, and custom mixes all on the Listen Now screen in Apple Music.

Apple Music Radio — which includes Apple Music 1, Apple Music Hits, and Apple Music Country — delivers an award-winning music listening and discovery experience to tens of millions of subscribers worldwide, with exclusive radio shows from the most beloved artists and well-respected hosts in the business. Throughout last year, Apple Music Radio hosts connected with the world's biggest superstars — including ABBA, Adele, Brandi Carlile, BTS, Coldplay, Kacey

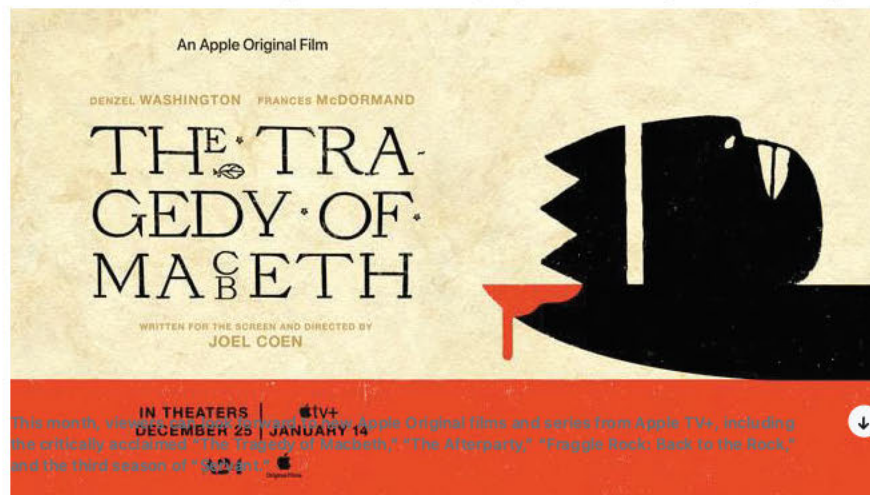
Musgraves, Lil Nas X, Lizzo, Megan Thee Stallion, Metallica, Mick Jagger, Neil Young, and Silk Sonic — for in-depth interviews and global exclusives. Apple Music also hosted a series of culture-moving livestreams, including Kanye West’s “Donda” release streams; “Rap Life Live” with Moneybagg Yo, Saweetie, and Lil Durk; and the expanded Apple Music Awards featuring The Weeknd, Olivia Rodrigo, H.E.R., Wizkid, Scriptonite, Aya Nakamura, RIN, and OFFICIAL HIGE DANDISM, helping fans stay connected to these history-making moments in music across the globe.

Last year, millions of people asked Siri to play music and, last month, Apple Music launched the Voice Plan, a new subscription tier powered by Siri. The Apple Music Voice Plan offers subscribers access to Apple Music’s entire catalog — including tens of thousands of new mood and activity playlists, personalized mixes, genre stations, and the award-winning Apple Music Radio — through a simple user interface for just \$4.99 per month.



In a first for music streaming, and as part of Apple’s ongoing mission to support the global artist community, Apple Music leveraged Shazam’s unmatched technology to identify the creators featured in the thousands of popular DJ mixes available on the service so that they can be compensated for their contributions. Apple Music also launched support for record label pages to help listeners find more great music from those behind the artists they already enjoy. Later this year, listeners can look forward to even more global premieres, exclusives, in-depth interviews, livestreams, DJ mixes, and the world’s best streaming experience for classical music with the most beloved features of Primephonic, plus even better browsing and search capabilities, detailed displays of classical music metadata, and much more.





In just two years, **Apple TV+** has made streaming history by achieving major milestones in a short span of time. Apple TV+ has been honored with 763 award nominations and 190 wins, including Academy Award and BAFTA Award nominations, 12 Primetime Emmy Award wins across major program categories, Daytime Emmy Awards, SAG Awards, NAACP Image Awards, Peabody Awards, AFI Awards, Critics Choice Awards, Critics Choice Documentary Awards, Kidscreen Awards, and many more.

New Apple Original series and films captivated audiences around the world with culture-moving programs such as "Ted Lasso," which continues to break records and recently became the most nominated freshman comedy in Emmy Award history, landing four Emmys, including Outstanding Comedy Series. Celebrated new Apple Original Films "The Tragedy of Macbeth," "CODA," "Swan Song," "Finch," and "The Velvet Underground" continue to draw buzz and acclaim with film critics groups, as well as global audiences. Last year, Apple TV+ premiered gripping new original series, including "The Shrink Next Door," "Invasion," "Swagger," "The Mosquito Coast," "Physical," "Foundation," "Schmigadoon!," "Mr. Corman," "The Problem with Jon Stewart," the service's first bilingual series "Acapulco," and its first Korean-language Original "Dr. Brain." This year, subscribers will be able to enjoy even more highly anticipated **Apple Originals** from internationally renowned storytellers, including "WeCrashed," "The Afterparty," "Fraggle Rock: Back to the Rock," "Severance," and "Suspicion," as well as new seasons of returning favorites such as "Servant," "Mythic Quest," "Ted Lasso," "Physical," "Truth Be Told," and "The Morning Show."

All Apple Original series and films are available on the **Apple TV app**, accessible from over a billion devices, including popular smart TVs from LG, Panasonic, Samsung, Sony, TCL, VIZIO, and others; Amazon Fire TV and Roku devices; and PlayStation and Xbox gaming consoles. The Apple TV app launched on Android TV, Chromecast with Google TV, Sky Q set-top boxes, and Sky Glass TVs last year, and will soon launch on Comcast Xfinity set-top boxes. The Apple TV app also offers viewers a personalized guide to their favorite TV show, sports, and films across other popular streaming services, channels, and pay TV providers. New features, including For All of You, SharePlay, and the Store tab, now make it easier to find personalized recommendations, watch with friends and family, and buy, rent, or stream favorites all in one place.

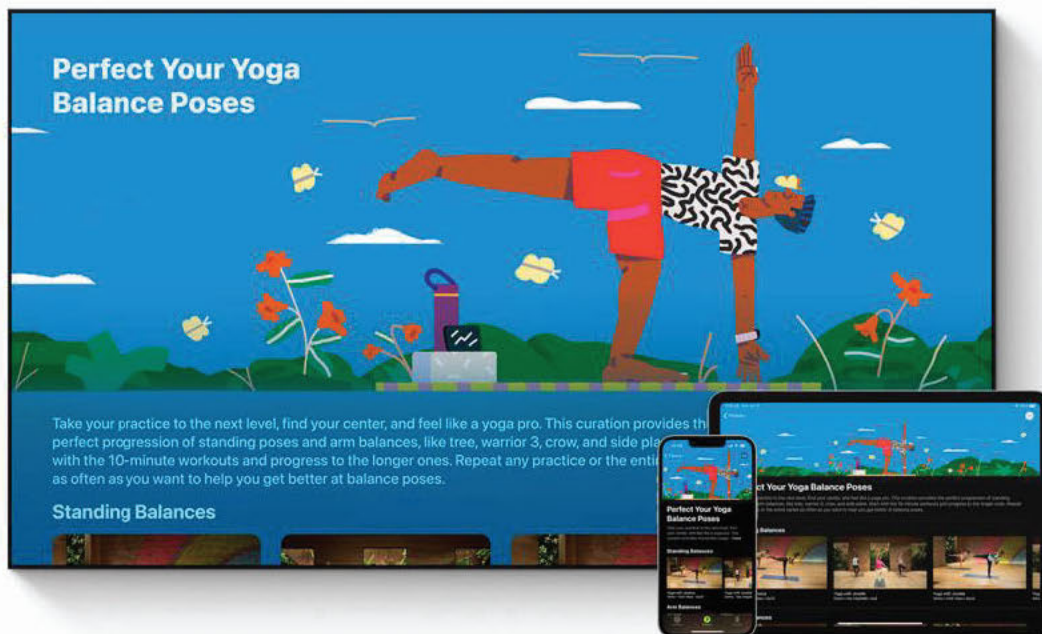
The next generation **Apple TV 4K**, which launched last spring with the all-new Siri Remote, offers customers the best way to enjoy Apple Originals from Apple TV+ and more using the Apple TV app. Siri on tvOS is now available in 24 countries and regions, including Belgium, Hong Kong, and Russia, allowing even more users to interact with Apple TV 4K in their native language. And, for the first time, customers in South Korea can enjoy Apple TV 4K, the Apple TV app, and Apple TV+ through SK Broadband.



As the new year begins, **Apple Fitness+** continues to motivate people around the world to close their rings and live a healthier day, both mentally and physically. Today, Fitness+ introduced **Time to Run**, an audio running experience designed to help users become more consistent and better runners, featuring popular running routes in select major cities; and Collections, a curated series of workouts and meditations from the Fitness+ library organized to help users reach a goal. Fitness+ also introduced the third season of Time to Walk, featuring guests such as award-winning actor Rebel Wilson, advocate and minister Bernice A. King, and actor and comedian Hasan Minhaj. Fitness+ will also introduce new Artist Spotlight workouts featuring music from Ed Sheeran, Pharrell Williams, Shakira, and the Beatles.

Every day, users share inspirational stories on how their lives have been changed by Fitness+. Since launching just over a year ago, Fitness+ has expanded its library to feature almost 2,000 studio-style sessions, the largest library of workout content in 4K Ultra High Definition, covering 11 different workout types — including HIIT, Strength, Core, Yoga, Pilates, Dance, Cycling, Rowing, Treadmill (for running and walking), and Mindful Cooldown — with new content added each week. This past year, Fitness+ also introduced guided meditation, a simple way to practice mindfulness anytime, anywhere and improve overall well-being. Workouts and meditations are led by an inclusive and welcoming team of trainers, which continues to expand as the service grows.



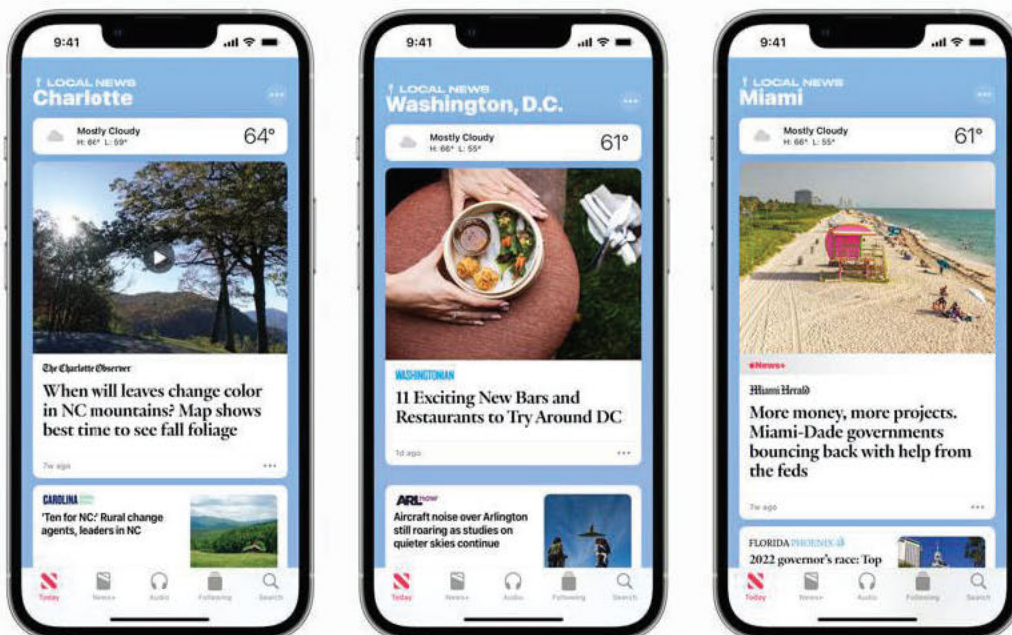


Collections, a curated series of workouts and meditations from the Fitness+ library organized to help users reach a goal, are available starting today, January 10, on Fitness+.

Fitness+ also motivated users with Time to Walk, the inspiring audio experience on Apple Watch, with 42 guests to date including Prince William, Dolly Parton, Anthony Joshua, Randall Park, Camila Cabello, Kurt Fearnley, Naomi Campbell, Bebe Rexha, Dr. Sanjay Gupta, and more. Fitness+ also introduced custom content designed to help users get started, make progress, or navigate through a season in their life including Workouts for Beginners, Workouts for Older Adults, Workouts for Pregnancy, Meditations for Beginners, and Get Ready for Snow Season, as well as workouts with one of the most sought-after fitness experts, Jeannette Jenkins, to help users mix up their fitness routine and stay motivated. Acknowledging the power of music, the service also launched an Artist Spotlight series featuring playlists by artists such as Alicia Keys, the Beatles, Billie Eilish, Calvin Harris, Jennifer Lopez, Keith Urban, and Shakira. In the same year, Fitness+ introduced new ways to work out or meditate together with SharePlay and expanded to 15 new countries, broadening its global footprint to reach more people around the world.

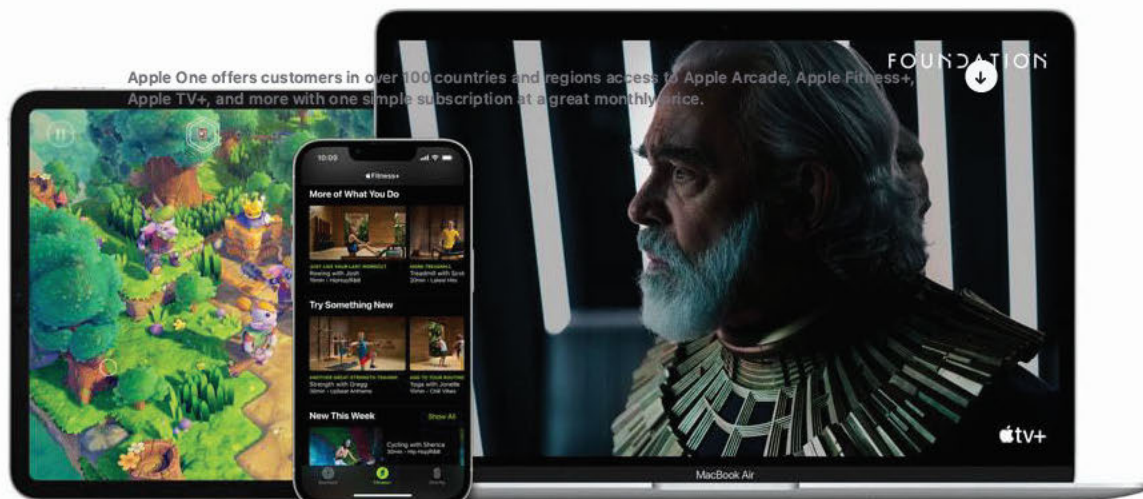
Fitness+ helps users train their body and mind with a one-of-a-kind personalized and engaging experience that can be done anytime, anywhere; intelligently incorporates workout metrics from Apple Watch right on the screen; and motivates users from start to finish with music from today's top artists. When browsing for a workout, Fitness+ also makes personalized recommendations based on a user's workout history so that no matter what their fitness level is, it is easy to find a workout with More of What You Do and Try Something New. With new content, more trainers, and greater availability worldwide, it's easier than ever to get started with Fitness+, and in 2022, there is even more to come.





Apple News launched local news experiences in additional cities, including Charlotte, Washington, D.C., and Miami. ↓

**Apple News** continues to be the number one news app in all markets where it is available. Last year, Apple News launched local news experiences in six additional cities — Charlotte, Miami, Sacramento, San Antonio, San Diego, and Washington, D.C. — and introduced the extremely popular “Read Local” collection that encourages a national audience to engage with the best stories from local publications every week. Each weekday morning, Apple News Today continues to take listeners inside the most fascinating stories in the news, and how the world’s best journalists are covering them. And each Saturday, with the new “In Conversation” audio series, Apple News presents insightful interviews with the journalists who are covering some of the best stories available in the app. Last year, **Apple News+** subscribers also enjoyed hundreds of new professionally narrated audio stories from outlets such as The New Yorker, People, and National Geographic, and there are many more great stories on the way this year.



"Wild Things: Siegfried & Roy" from Apple TV+ and AT WILL MEDIA, "Marvel's Wastelanders: Black Widow," NPR's "The Limits with Jay Williams," Campside Media's "Chameleon: Wild Boys," and "Into The Depths" with Tara Roberts from National Geographic arrive on Apple Podcasts this month.

2021 was the year that podcasts became an undeniable global phenomenon. Listeners around the world now tune in to millions of shows every minute to be entertained, stay informed, connect with their communities, and learn something new. Last year, **Apple Podcasts** launched the biggest updates since its debut and lead the next chapter of podcasting with Apple Podcasts Subscriptions, providing listeners simple and meaningful ways to discover, enjoy, and support the world's best podcasts.

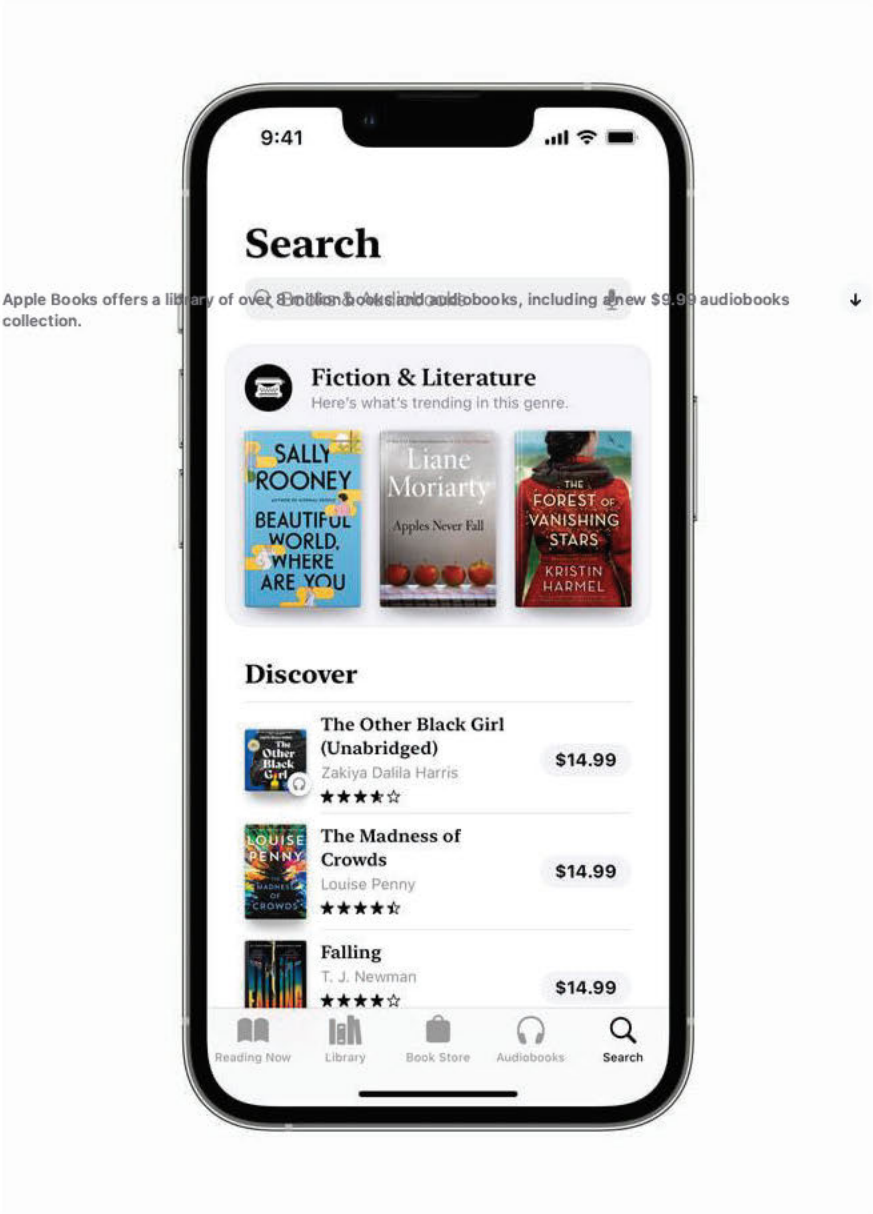
With redesigned show pages that showcase creators' beautiful artwork; clearer controls for following, downloading, queuing, and saving podcasts; and the Smart Play button, which automatically presents the best episode to play next, Apple Podcasts makes browsing and playing shows from the world's catalog of record a delight. Curated groups of shows called channels; enhanced recommendations in the Listen Now tab; new, editorially curated collections featured in Browse

each week; and Shared with You, which displays podcasts shared over Messages directly in the Apple Podcasts app, come together to offer listeners the easiest way to find their next favorite show.

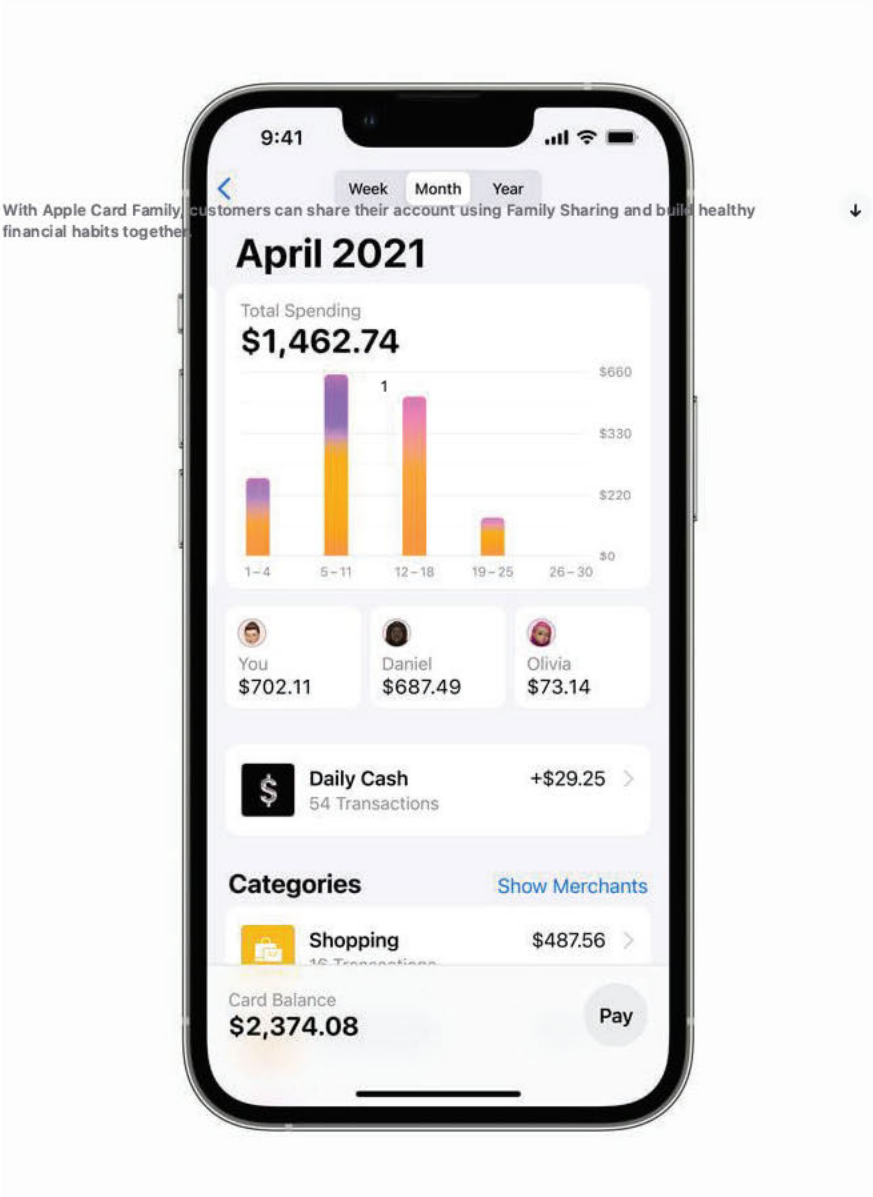
With Apple Podcasts Subscriptions, listeners can now become subscribers to shows and channels instantly and right from where they listen, unlocking premium content and additional benefits — including early access, extra episodes, and ad-free listening — all while supporting their favorite creators. Subscribers on Apple Podcasts have been treated to the best experiences for many of last year’s top shows, including exclusive access to Luminary’s “The Midnight Miracle”; early and ad-free access to “Smartless” with Jason Bateman, Sean Hayes, and Will Arnett through Wonder+; realtime dispatches from the Elizabeth Holmes trial on “Bad Blood: The Final Chapter”; and bonus episodes from Tortoise Media’s popular investigative series, “Sweet Bobby.”

Listeners can look forward to new shows and subscriptions from top creators throughout this year. This month’s launches include “Marvel’s Wastelanders: Black Widow”; NPR’s “The Limits with Jay Williams”; Luminary’s “The Roxanne Gay Agenda”; Univision’s first daily news podcast “Univision Reporta” with León Krauze; the next season of Campside Media’s popular investigative series “Chameleon”; and a six-part narrative series from National Geographic that follows explorer Tara Roberts and a team of Black scuba divers “Into The Depths,” as they unearth stories from the lost shipwrecks of the transatlantic slave trade. This week, Apple TV+ and AT WILL MEDIA will launch “[Wild Things: Siegfried & Roy](#),” taking listeners behind the velvet curtain to reveal the behind-the-scenes story of the world’s most famous magical duo turned pop culture icons.

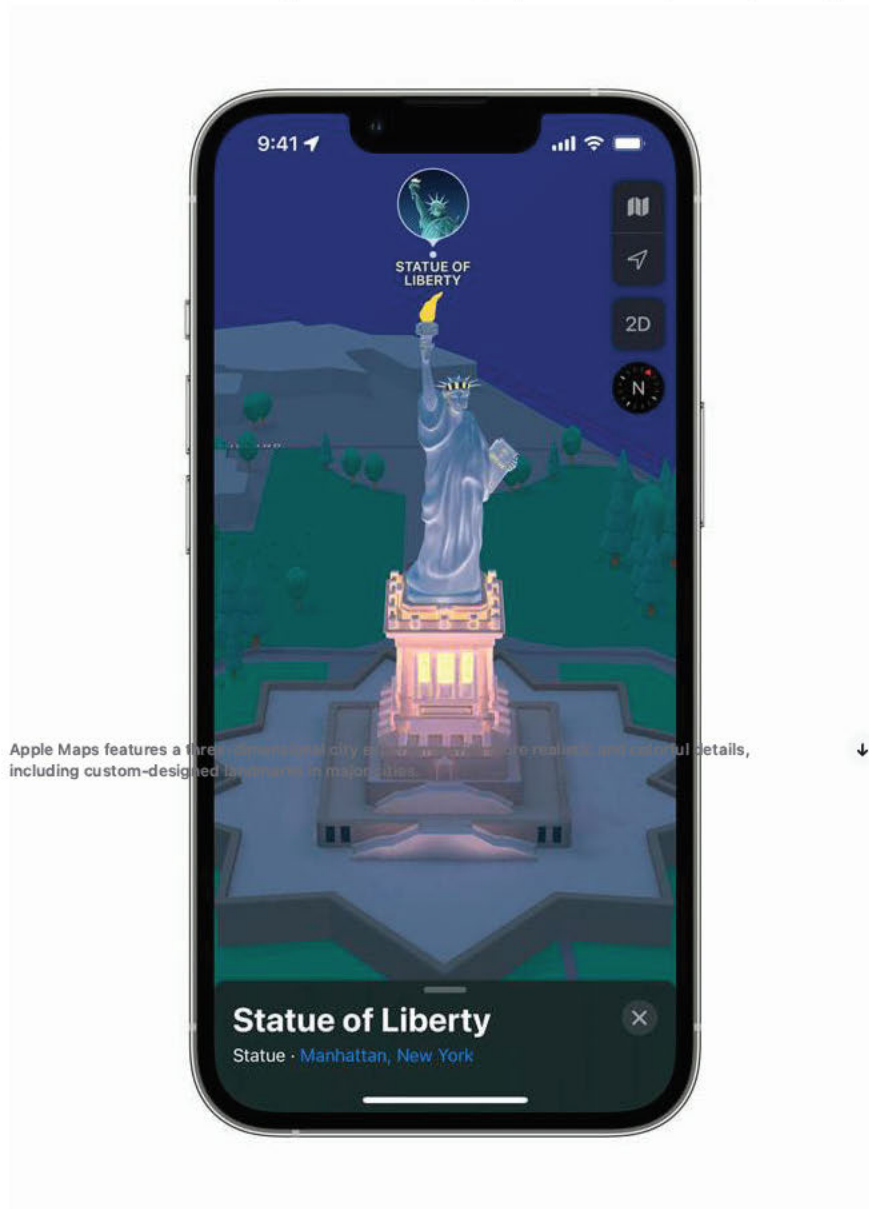








IDs in wallet helped university students in the US and Canada safely and securely get around campus. And for travelers, Apple rolled out the first hotel room keys at select Hyatt properties in the US while also unlocking magical moments for Walt Disney World visitors with Disney MagicMobile passes in Wallet. Users can look forward to support for home keys and corporate badges, as well as state IDs and driver's licenses, this year.



CarPlay users in London, Los Angeles, New York City, Philadelphia, San Diego, San Francisco, and Washington, D.C., and will be available in Montreal, Toronto, and Vancouver this year.

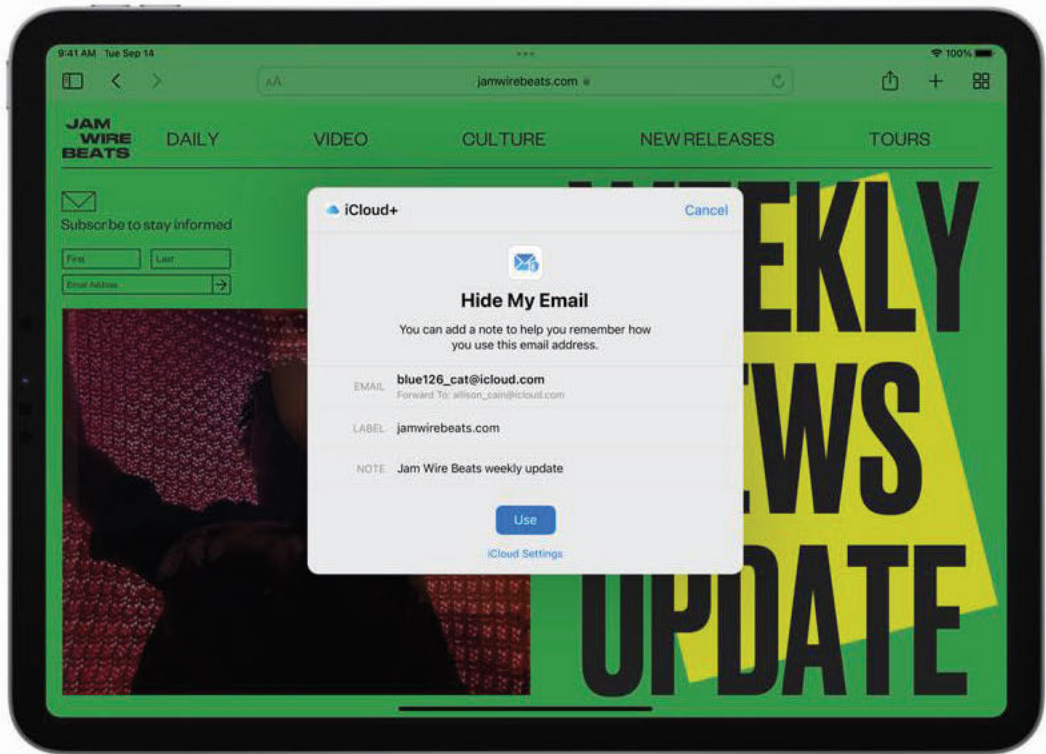
Maps also introduced an enhanced navigation experience with additional road details that help drivers navigate through cities more easily and safely; powerful transit updates that allow users to pin their favorite lines in Maps, and receive notifications on iPhone or Apple Watch when it's time to disembark a selected route; and step-by-step walking guidance in augmented reality.

With faster, more accurate navigation and comprehensive views of roads, buildings, parks, airports, and malls, Maps makes it easier and more enjoyable to map out any journey across iPhone, iPad, Mac, or while in the car with CarPlay. The new map, built from the ground up, continues to roll out to more countries and regions. Last year, the new map expanded beyond Canada, Ireland, Japan, the United Kingdom, and the United States to include Australia, Italy, Portugal, and Spain.

Curated Guides in Maps make it easy to discover the amazing things to see and do in cities, and in 2021, new Guides were added from trusted resources like



Thrillist, the Smithsonian Institution, and FATMAP. Now Maps features Guides from more than 100 trusted resources, so users can check out what authors like Bryant Terry and María Amparo Escandón recommend in their favorite cities, what Atlas Obscura suggests for “[The World’s Most Interesting Restaurants](#),” or what Culture Trip suggests for “[Beautiful Hidden Beaches of the World](#).”



iCloud+ features iCloud Private Relay, expanded HomeKit Secure Video recording support, Custom Email Domains, and Hide My Email — an easy way to create a unique, random email address that forwards to a personal inbox.

**iCloud** has always kept a customer’s important information like photos, documents, app data, and notes safe, up to date, and accessible across their devices. The introduction of **iCloud+**, a new paid subscription, combines everything customers love about iCloud with powerful new features for paid subscribers, all for the same low prices.<sup>2</sup> Features of iCloud+ include iCloud Private Relay, an innovative new service that protects privacy online; Hide My Email, an easy way to create a unique, random email address that forwards to a personal inbox; expanded HomeKit Secure Video recording so customers can set up all the cameras they need to keep an eye on their home; and Custom Email Domain, so customers can personalize their iCloud email address. All plans can be shared with people in the same Family Sharing group, so everyone can enjoy the new features, storage, and elevated experience that comes with iCloud+.

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Apple revolutionized personal technology with the introduction of the Macintosh in 1984. Today, Apple leads the world in innovation with iPhone, iPad, Mac, Apple Watch, and Apple TV. Apple's five software platforms — iOS, iPadOS, macOS, watchOS, and tvOS — provide seamless experiences across all Apple devices and empower people with breakthrough services including the App Store, Apple Music, Apple Pay, and iCloud. Apple's more than 100,000 employees are dedicated to making the best products on earth, and to leaving the world better than we found it.

1. The J.D. Power 2021 U.S. Credit Card Satisfaction Study survey was fielded from September 2020 to June 2021, during which time Goldman Sachs and Apple Card qualified for the midsize issuer segment. For additional information, please visit the J.D. Power press release at <https://www.jdpower.com/pr-id/2021095>.
2. iCloud+ plans: 50GB with one HomeKit Secure Video camera (\$0.99 per month), 200GB with up to five HomeKit Secure Video cameras (\$2.99 per month), and 2TB with an unlimited number of HomeKit Secure Video cameras (\$9.99 per month). iCloud Private Relay is currently available as a public beta.

## Press Contacts

### Apple Media Helpline

[media.help@apple.com](mailto:media.help@apple.com)

## Latest News



UPDATE

### Apple announces next Impact Accelerator class advancing environmental innovation

August 30, 2023



APPLE STORIES

### A new generation preserves tribal land and culture in America's national parks

August 24, 2023



UPDATE

### Apple Card named Best Co-Branded Credit Card with No Annual Fee by J.D. Power

August 17, 2023

The latest news and updates, direct from Apple.

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Apple > Newsroom > Apple services enrich peoples' lives throughout the year

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United States

# EXHIBIT 5

## TECH

# Apple implies it generated record revenue from the App Store during 2021

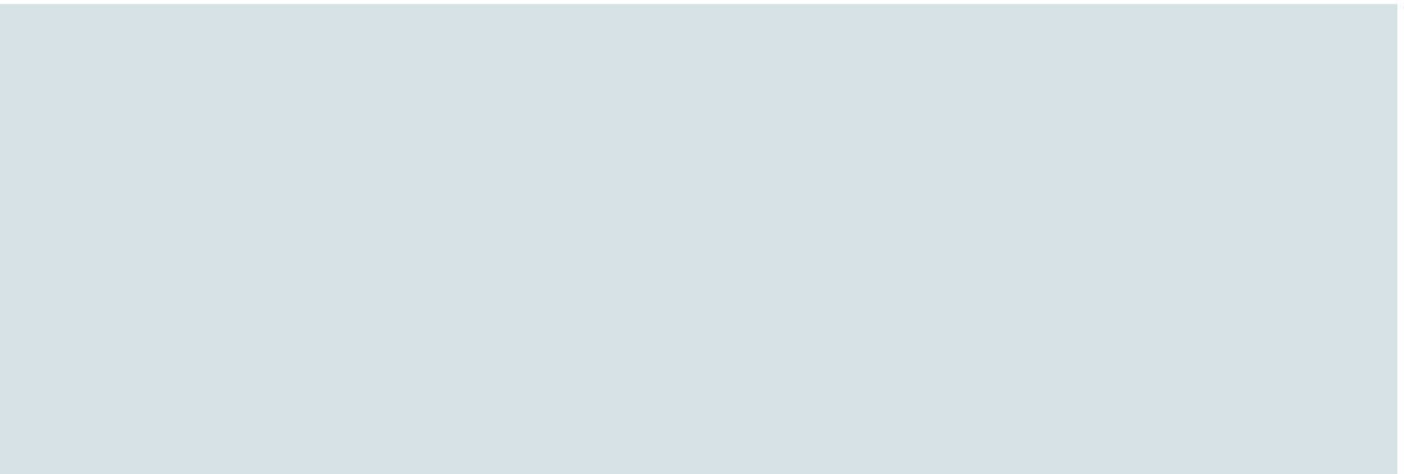
PUBLISHED MON, JAN 10 2022-1:01 PM EST UPDATED MON, JAN 10 2022-1:04 PM EST

**Kif Leswing**  
@KIFLESWING

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## KEY POINTS

- Apple said Monday that it paid developers \$60 billion in 2021, a figure that suggests that App Store sales continue to grow at a rapid clip.
- The statistic came as part of a broader announcement from Apple meant to show momentum for its services business, which is an important signal for investors and analysts.
- Apple's payments to developers account for between 70% and 85% of Apple's total gross from its App Store, which takes between 15% and 30% of sales from digital purchases made in apps.







The statistic came as part of a [broader announcement from Apple](#) meant to show momentum for its services business, which is an important signal for investors and analysts, who like to see Apple not only making money from selling hardware but also through selling services and apps to its customers, such as app downloads.

Apple's payments to developers account for between 70% and 85% of Apple's total gross from its App Store, which takes between 15% and 30% of sales from digital purchases made in apps.

In the past, it's been possible to back into a rough estimate for Apple's App Store total revenues by assuming the payments to developers was equal to 30% of Apple's total App Store sales. But, in the past year, the company changed its commission structure several times [in response to regulators and legal challenges](#).

In particular, in 2021 Apple [introduced the Small Business Program](#), which cut fees to 15% for developers who make under \$1 million per year. [According to estimates](#), as many as 98% of App Store developers fall into this category, but it accounts for only a small fraction of total sales.

Apple also introduced a program for news apps that would [slash their fees to 15%](#) if they provided content to Apple News in August. For all developers, Apple also only takes 15% of the second year of a subscription, instead of 30%.

If Apple's commissions were uniformly at 30%, it grossed \$85.71 billion in App Store sales in

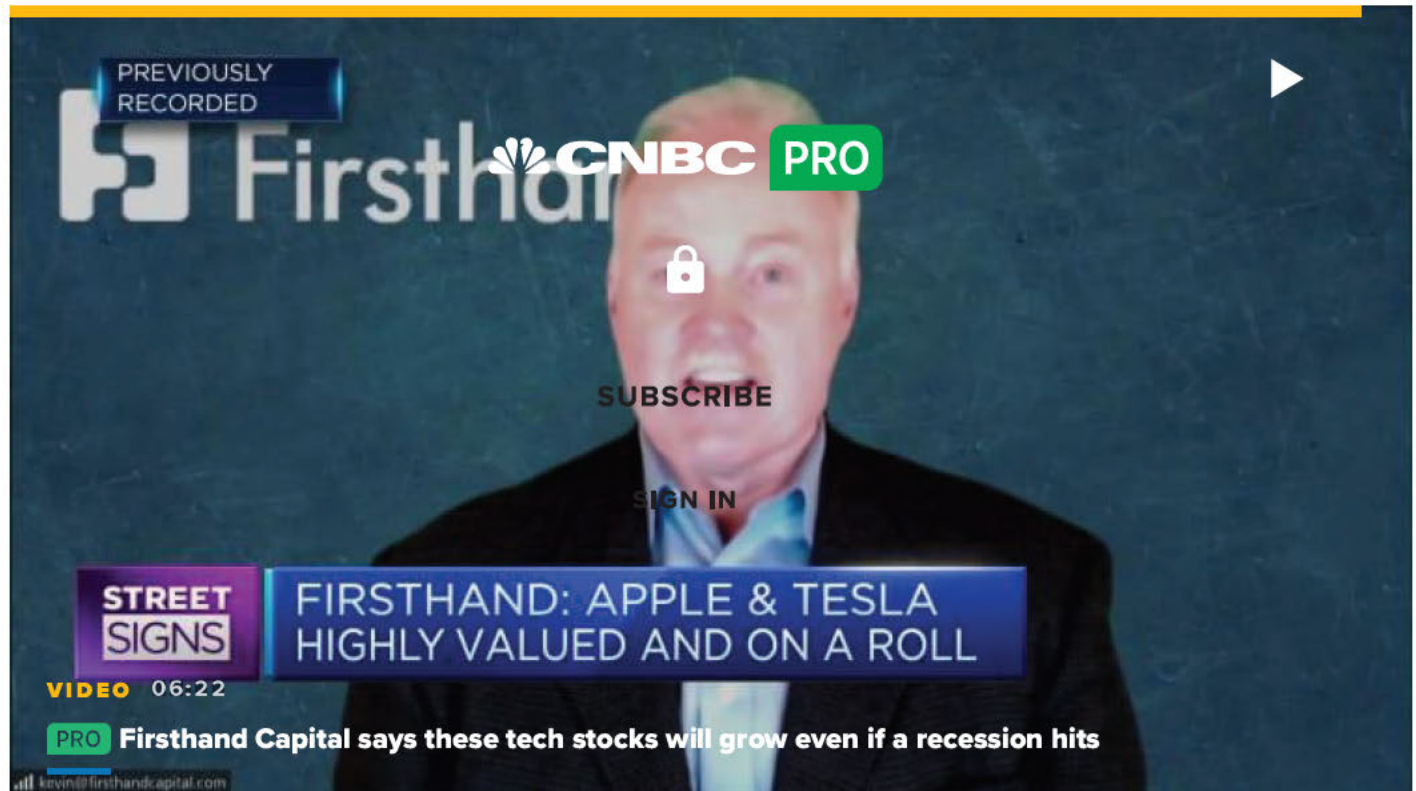




WATCH LIVE

Last year, [CNBC analysis suggested](#) that Apple's App Store grossed more than \$64 billion in 2020, based on a 30% commission rate.

Apple also said on Monday that it had 745 million paid subscriptions, which include Apple-provided services like Apple Music and iCloud, and also includes any customer who subscribes to an app through the App Store. That's up from 700 million last summer.



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# EXHIBIT 7

TECH FIX

# The New Apple Watch Measures Your Blood Oxygen. Now What?

Blood oxygen readings can be a useful indicator of wellness, but context is important — and so is medical advice from a doctor.



By Brian X. Chen

Published Sept. 17, 2020 Updated Dec. 22, 2020

**Sign up for The Next Pandemic newsletter.** Insights and guidance for preparing for future outbreaks. [Get it sent to your inbox.](#)

The new Apple Watch can be summed up in two words: blood oxygen.

The ability to measure your blood’s oxygen saturation — an overall indicator of wellness — is the most significant new feature in the Apple Watch Series 6, which was unveiled this week and becomes available on Friday. (The watch is otherwise not that different from last year’s Apple watch.) The feature is particularly timely with the coronavirus, because some patients in critical condition with Covid-19 have had low blood oxygen levels.

But how useful is this feature for all of us, really?

I had a day to test the new \$399 Apple Watch to measure my blood oxygen level. The process was simple: You open the blood oxygen app on the device, keep your wrist steady and hit the Start button. After 15 seconds, during which a sensor on the back of the watch measures your blood oxygen level by shining lights onto your wrist, it shows your reading. In three tests, my blood oxygen level stood between 99 percent and 100 percent.

I wasn’t quite sure what to do with this information. So I asked two medical experts about the new feature. Both were cautiously optimistic about its potential benefits, especially for research. The ability to constantly monitor blood oxygen levels with some degree of accuracy, they said, could help people discover symptoms for health conditions like sleep apnea.

“Continuous recording of data can be really interesting to see trends,” said Cathy A. Goldstein, a sleep physician at the University of Michigan’s Medicine Sleep Clinic, who has researched data collected by Apple Watches.

But for most people who are relatively healthy, measuring blood oxygen on an everyday basis could be way more information than we need. Ethan Weiss, a cardiologist at the University of California, San Francisco, said he was concerned that blood oxygen readings could upset people and lead them to take unnecessary tests.

“It can be positive and negative,” he cautioned. “It could keep people out of doctors’ offices and at home and give them reassurance, but it could also create a lot of anxiety.”

That’s important to remember as smart watches gain new health-monitoring features that give us information about ourselves that we have to figure out how to use. When the Apple Watch Series 4 introduced an electrical heart sensor for people to take electrocardiograms in 2018, it was useful for people with known heart conditions to monitor their health — but doctors warned that it was also a novelty that should not be used to jump to conclusions or for people to self-diagnose heart attacks or other conditions.

And so, here we are again.

## What to Know About Blood Oxygen Levels





A healthy person will usually have sleep disorders or respiratory issues.

If you buy the Apple Watch and for thinking about the data. Most that you can place it into context.

But when it comes to medical advice, it's not necessarily a reason to panic, as such as fever or a cough, a normal sign of illness.

Let a medical expert — not your doctor — interpret the data.

Blood oxygen monitoring may be useful for someone with a history of heart disease or a doctor, who could then monitor their oxygen levels.

The information could also be useful in a hospital setting. "If I have Covid and my oxygen level is at 80 percent," I would say, "Go to the hospital," Dr. Weiss said.

## So Why Should I Care?



conditions such as lung disease,

important to have a framework in place to share the measurements so that doctors can interpret the data, Dr. Goldstein said.

blood oxygen level, it is not unusual to have symptoms of illness, Dr. Goldstein said.

Dr. Weiss said. For example, if a doctor has that information could be shared with a patient's primary care physician.

Dr. Weiss called me and said, 'I have



The sensor on the back crystal of the watch has LEDs and photodiodes. Apple

In the end, health data on its own isn't immediately useful, and we have to decide how to make the best use of the information. Apple doesn't recommend what to do or how to feel about the information, just as a bathroom scale doesn't tell you you're overweight and give you a diet plan.

If you find that the data makes you more anxious, you could simply disable the feature, Dr. Goldstein said.

But even if blood oxygen measurement sounds gimmicky today, it's important to keep an open mind about how new health-monitoring technologies might benefit us in the future. Both Dr. Goldstein and Dr. Weiss pointed to sleep apnea as an area where wearable computers might benefit people. The condition, which causes breathing problems during sleep, affects millions of Americans, but most people never know that they have it.

It's a bit of a catch-22. If you had symptoms of sleep apnea, which include lower blood oxygen levels, your doctor would order a test. But you probably wouldn't catch the symptoms while you were asleep, so a study would never be ordered.

The Apple watch will periodically measure your blood oxygen level in the background, including when you are asleep. So if we gather data about ourselves while we're slumbering, we might discover something unknown about ourselves — or not.

"Until we start doing it, we don't know whether or not this information can be valuable," Dr. Goldstein said.



# EXHIBIT 8

## Filed Under Seal





# EXHIBIT 9

## Filed Under Seal





















# EXHIBIT 10

**From:** [Mark Kachner](#)  
**To:** [Jeffrey Seddon](#); [Jared Bunker](#); [Carson Olsheski](#); [Benjamin Luehrs](#)  
**Cc:** [bpalapura@potteranderson.com](#); [dmoore@potteranderson.com](#); [Greenfield, Leon](#); [Vote, Dominic](#); [Ford, Mark](#); [Milici, Jennifer](#); [Apple Masimo Service](#); [Knobbe.MasimoDE](#); [Jack Phillips](#); [Megan C. Haney](#); [Payson LeMeilleur](#)  
**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses  
**Date:** Monday, July 31, 2023 9:32:32 AM

---

Jeff,

Thank you for your email clarifying Apple's position on the RFPs that we discussed on July 12. We understand Apple has divided the disputed RFPs into three categories, a first category that Apple agrees to produce, a second category that Apple states that it is still investigating, and a third category that Apple does not agree to search for. We will address the RFPs based on Apple's categorization.

For the first category of RFPs in your July 28 email, for which Apple agrees to produce:

- RFP 135: Thank you for confirming [REDACTED]  
[REDACTED] As we discussed on July 12, [REDACTED]  
[REDACTED] Masimo requested that in addition to [REDACTED]  
[REDACTED] Please confirm Apple is  
searching for and will produce [REDACTED]
- Sales data – On July 12 we explained that Apple's sales data at APL-DEL00027954 [REDACTED]  
[REDACTED] and that Masimo requested revenue/unit/cost data [REDACTED]  
[REDACTED] Please confirm Apple is supplementing this production [REDACTED].

For the second category of RFPs in your July 28 email, for which Apple states it is still investigating: On July 10, Masimo requested a meet and confer and outlined its position on the RFPs at issue. The parties met and conferred on July 12. Apple has had ample time to investigate whether responsive documents exist and whether producing responsive documents would be burdensome. For RFPs 133-134, 153, 132, 152, 154, and 163-164, we understand that Apple has not committed to conduct a reasonable search and produce responsive documents. Specifically as to RFPs 133-134: these requests relate to Apple's financial documents, revenues, and profits from the app store, subscriptions, and other service revenue. In your July 28 email, you limited this request to "Apple apps or Apple subscriptions that use blood oxygen measurements." Masimo's requests are not limited in this way. During our meet and confer and as explained in our subsequent correspondence, Masimo seeks Apple's financial data for all revenues and profits from the app store, subscriptions, and other service revenue. During our meet and confer, and in subsequent correspondence, we explained the relevance of this information and that Masimo seeks discovery on Apple's entire revenue stream associated with the Watch, beyond the profit on the watch hardware. Apple has not agreed to produce responsive documents. Indeed, with regard to RFPs 136-138, Apple refused to produce information on revenue not specifically "tied to the accused functionality." Masimo will move to compel.

For the third category of RFPs in your July 28 email, for which Apple states it does not believe "further searches and productions are warranted," and for which Apple then states it is willing to further meet and confer if Masimo disagrees. The parties already met and conferred on these requests. Masimo explained its position on relevance, and Apple has not agreed to produce



responsive documents that it locates following a reasonable search. The parties' positions are clear and Apple has confirmed it refuses to conduct a reasonable search and produce responsive documents.

- RFPs 155-162: These requests seek Apple's financial forecasts or projections related to changes in particular watch models. Apple identifies other financial documents it produced or is searching for and planning to produce. Apple then says Masimo has not identified "any documents" that would be missed by Apple's searches. Masimo disagrees. Masimo specifically requests certain forecasts and projections and Apple should search for the requested documents. Either such documents exist, in which case Apple should produce them, or Apple searched and could not locate responsive documents.
- RFPs 136-138: Apple has refused to produce responsive documents. Masimo explained during our July 12 meet and confer and in our subsequent written correspondence why Apple's entire revenue stream associated with the Watch, beyond the profit on the watch hardware, is relevant. Masimo will move to compel.
- RFP 131: It appears Apple agrees that RFP 131 is a specific subset of documents that would also be responsive to RFP 130. We understand Apple's position that by agreeing to produce documents responsive to RFP 130, Apple has satisfied its obligations on RFP 131. Apple also invites Masimo to propose search terms for email discovery on this topic. When Apple produces documents responsive to RFP 130 and 131, Masimo reserves its right to follow-up and seek specific related communications.
- RFP 121: This request seeks documents related to Apple's contention on acceptable available noninfringing substitutes that Apple has yet to provide. See Apple's response to Interrogatory 9, and Apple's July 22, 2023 email. Because Apple has not yet provided its contention, Masimo is handicapped in its ability to propose search terms that would address Apple's potential future contention. Masimo reserves the right to propose search terms to identify relevant communications, as you invited below, once Apple eventually provides its contention in response to Interrogatory No. 9.

Regards, Mark

**Mark Kachner**

Partner

310-407-3472 Direct

**Knobbe Martens**

---

**From:** Jeffrey Seddon <JSeddon@desmaraisllp.com>

**Sent:** Friday, July 28, 2023 3:10 PM

**To:** Mark Kachner <Mark.Kachner@knobbe.com>; Jared Bunker <Jared.Bunker@knobbe.com>; Carson Olsheski <COlsheski@desmaraisllp.com>; Benjamin Luehrs <BLuehrs@desmaraisllp.com>

**Cc:** bpalapura@potteranderson.com; dmoore@potteranderson.com; Greenfield, Leon <Leon.Greenfield@wilmerhale.com>; Vote, Dominic <Dominic.Vote@wilmerhale.com>; Ford, Mark <Mark.Ford@wilmerhale.com>; Milici, Jennifer <Jennifer.Milici@wilmerhale.com>; Apple Masimo Service <AppleMasimoService@desmaraisllp.com>; Knobbe.MasimoDE <Knobbe.MasimoDE@knobbe.com>; Jack Phillips <JCP@PMHDELaw.com>; Megan C. Haney <mch@PMHDELaw.com>; Payson LeMeilleur <Payson.LeMeilleur@knobbe.com>

**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses



Mark,

Based on our discussions regarding Masimo's requests for documents related to damages, Apple clarifies its positions as follows:

First, Apple will conduct a reasonable search for and produce responsive, non-privileged documents related to:

- Apple's [REDACTED] (responsive to Masimo's RFPs 122-129):
- [REDACTED] (responsive to Masimo's RFP 153)
- [REDACTED] (responsive to RFP 135)
- Standard costs for the accused Watches

Second, Apple will conduct a further investigation into the following categories of documents/information in light of our discussions concerning Masimo's requests. Without agreeing to Masimo's contentions regarding relevance or discoverability, Apple is investigating the extent to which such documents exist (and have not already been produced) and any burden associated with collection, review, and production, and expects the results of those investigations may narrow or even resolve any disputes between the parties.

- [REDACTED] (responsive to Masimo RFPs 133-134).
- [REDACTED] (responsive to Masimo RFP 153)
- Documents showing the impact of adding EKG and heart rate measurement to the Watch (responsive to Masimo RFP 132)
- Annual reports or other documents provided to shareholders beyond those that are publicly available through the SEC or through Apple Investor Relations (responsive to Masimo RFP 152)
- Documents related to accuracy, light piping, cross-talk, quality, or cost for the accused blood oxygen measurement feature (responsive to Masimo RFP 154)
- Documents related to the licenses produced in C.D. Cal. and documents related to opportunities where Apple chose not to license or acquire technology related to blood oxygen monitoring (responsive to Masimo RFPs 163-164)

Third, we have considered our discussion concerning Masimo's other requests and do not believe further searches and productions are warranted for the reasons discussed below. If Masimo contends further searches are warranted, we are willing to meet and confer to discuss these issues.

- Forecasts or projections comparing specific Apple Watch series (Masimo RFPs 155-162):  
Apple has already agreed to search for and produce responsive, relevant, and non-privileged

[REDACTED]  
[REDACTED]

[REDACTED]

Masimo has not identified any documents that it believes would be missed by Apple's existing searches and provides only speculation that any such hypothetical documents would be relevant.

- [REDACTED]  
[REDACTED]  
(Masimo RFPs 137-138): Apple has produced [REDACTED]  
[REDACTED] has agreed to produce documents sufficient to show Apple's revenues on the sale of Apple Watch Series 4-8, SE, and Ultra [REDACTED]; and is investigating revenue from specifically identified apps, to the extent that any exists (in response to Masimo RFP 133-134). Masimo has not identified any basis for further discovery into revenues that are not tied to the accused functionality.
- Documents referring to "growing Apple's market share for wearables" by incorporating blood oxygen measurements (Masimo RFP 131): Apple has already agreed to search for [REDACTED]  
[REDACTED]  
[REDACTED] Masimo has not identified any documents that it believes would be missed by Apple's existing search and would be responsive to the request. While Masimo pointed to APL-MAS\_00695070 as an example during the parties' discussion, that email makes no mention of market share for wearables and does not appear to be responsive to this request. Moreover, to the extent Masimo seeks email discovery on this topic, the parties are currently negotiating email search terms – Masimo is free to propose a search term that it believes would capture this issue.
- Communications with third parties regarding alternative components (Masimo RFP 121): The parties are currently negotiating email search terms and Masimo is free to propose a search term that it believes will capture such communications.

Best,  
Jeff

---

**Jeffrey S. Seddon, II | Desmarais LLP**  
230 Park Avenue | New York, NY 10169  
Direct: 212.808.2966 | Cell: 410.980.7786  
Email: [jseddon@desmaraisllp.com](mailto:jseddon@desmaraisllp.com)

---

**From:** Jeffrey Seddon  
**Sent:** Saturday, July 22, 2023 3:32 AM



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**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses

Mark,

As you likely saw, I was working with your colleague on Masimo's request for a discovery teleconference today, as well as responding to your email regarding Masimo's interrogatories, and a few other items, and haven't had a chance to finish putting together an update regarding Apple's positions on the RFPs that we discussed. We'll follow up next week on that.

Best,  
Jeff

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**Sent:** Thursday, July 20, 2023 7:02 PM  
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**Subject:** [Ext] RE: Apple v. Masimo (1377, 1378) - Discovery Responses

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Jeff,

We are still waiting on Apple's follow-up concerning RFPs from our meet and confer on July 12. Please confirm Apple will respond this week.

Regards, Mark

**Mark Kachner**  
Partner  
310-407-3472 Direct  
**Knobbe Martens**

---

**From:** Mark Kachner

**Sent:** Thursday, July 13, 2023 1:22 PM

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**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses

Jeff,

Thank you for your follow-up email. We look forward to receiving Apple's further responses on the RFPs we discussed yesterday. We also write to follow-up on some of your statements below, and to correct some of your statements about Masimo's positions in your email below.

RFP 121, and 122-129: While we discussed that Masimo seeks alternatives that Apple could purchase as an alternative to purchasing sensor modules from Masimo, these requests are not so limited. Masimo seeks discovery on any alternative or design-around to Masimo's patented inventions that Apple contends were available and acceptable. To the extent Apple has such a contention, Masimo is entitled to know Apple's contention and take discovery on that contention. Further, to the extent Apple is now arguing that the subject of non-infringing alternatives and design arounds are purely the subject of expert discovery, please confirm Apple's position.

RFP 133-134: During our call, Masimo did not limit its requests to service revenue related to the blood oxygen measurement and EKG, heart rate, and step count. RFP 133 seeks all sources of Apple's service revenue related to the Apple Watch. As we discussed and as also explained in my email from yesterday, where the blood oxygen feature is a basis for or contributed to an Apple Watch purchase, Masimo should be allowed to discover Apple's financial benefit beyond profit on watch hardware sale itself to also include profit from all watch services including from the App. store, warranty, service, and replacement parts. Accordingly, we disagree with your statement that "Masimo articulated no basis for relevance of revenue related to unaccused features other than providing context." As you note, we also discussed that Masimo also seeks Apple's service revenue

that is not strictly limited to the blood oxygen app, to understand the relative importance of the blood oxygen app to Apple's ability to generate service revenue compared to other features of the Watch, and to put the contribution of the blood oxygen feature in context with other watch features, regarding their abilities to generate recurring revenue for Apple.

RFP 131: During yesterday's meet and confer, we did not discuss or advocate a "wearables market" for purposes of this litigation. I simply explained what the term "wearables" is generally referring to in the context of RFP 131.

Regards, Mark

**Mark Kachner**  
Partner  
310-407-3472 Direct  
**Knobbe Martens**

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**From:** Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>  
**Sent:** Thursday, July 13, 2023 7:15 AM  
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**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses

Mark,

It was a productive discussion and, as we discussed, we intend to revisit our positions with regard to Masimo's requests in response to the discussion. Given the scope of our discussion and the timing—the week ends tomorrow—I don't know that we'll be able to get you an update by the end of the week, but we're working on running these down and will get back to you with our positions or any updated questions.

With regard to your summary, I have provided some clarifications, supplements, and corrections below. I also note that, while we sought a better understanding of Masimo's positions, that does not indicate that Apple agrees with Masimo's positions—indeed, we repeatedly indicated that many of Masimo's requests do not appear to be relevant or connected with the issues in dispute in this case.

With regard to RFP 121, Masimo indicated that it was seeking discovery into any alternatives that Apple might contend are alternatives to Masimo sensor modules, i.e. that would be alternatives



Apple could purchase as an alternative to purchasing sensor modules from Masimo. Masimo further indicated that this request was responsive to the positions from the C.D. Cal. lawsuit, as were Masimo's RFPs 122-129, which generally request discovery into Apple's supply chain for the accused functionality and policies regarding suppliers—in particular, the position that [REDACTED]

Apple indicated that, while non-infringing alternatives are the proper subject of expert discovery and that it was still developing its contentions with regard to the accused patents in this case, Apple would revisit its position in light of potential overlap with the issues in the C.D. Cal. litigation.

With regard to RFPs 133-134, Masimo indicated that its request for documents concerning financial information on Apple services was intended to cover Apple's revenue (and other financial information) from app sales (either initial purchases of Apple apps or recurring monthly charges from Apple apps), as well as warranties and replacement parts. Masimo indicated that it wanted not just revenue directly related to blood oxygen measurement, but also revenue related to unaccused features (e.g. EKG, heart rate, step count) in order to put "in context" revenue related to blood oxygen measurement, although Masimo articulated no basis for relevance of revenue related to unaccused features other than providing context. Masimo did not identify any specific apps that it contended would be relevant, although it noted that it at least sought information concerning Apple apps that collected blood oxygen, EKG, heart rate, and step count information.

With regard to RFPs 136-138, Masimo indicated that it believed at least some consumers bought Apple Watches due to the blood oxygen feature and indicated that it believed that it was entitled to know financial information for all follow-on purchases as a result. Masimo did not, however, explain how the requests were tied specifically to the allegedly infringing functionality, nor did Masimo dispute that blood oxygen measurement existed before the alleged inventions in Masimo's asserted patents.

With regard to RFP 153, while we will investigate Masimo's clarified requests, [REDACTED]  
[REDACTED] e, during the call, I did not agree that Apple would produce updated documents – I need to consult with my client first. We will also look into Masimo's request for more [REDACTED]  
[REDACTED]

With regard to RFP 131, we will review the document Masimo identified (APL-MAS\_00695070-71) as an exemplary example of the documents sought. We will also take into account Masimo's description of the "wearables market," which Masimo indicated is the market that Apple competes in for wearables and could include any competitive product from which a blood oxygen sensor might allow Apple to take sales, including, for instance, finger pulse oximeters.

With regard to RFP 132, Masimo indicated that it was looking for documents concerning the impact of adding a blood oxygen feature to the Apple Watch, as well as documents concerning the impact of adding the capability of measuring EKG and heart rate. Again, Masimo indicated that the documents regarding the impact of adding non-accused capabilities, i.e. measuring EKG and heart rate, were relevant to provide context, but did not indicate any other relevance.

With regard to RFP 135, Masimo indicated that it sought [REDACTED]

[REDACTED] to the extent that they exist.

With regard to RFP 152, Apple asked what Masimo wanted that was not already publicly available, e.g. SEC filings. Masimo indicated that it sought documents provided to shareholders, but not the SEC, e.g. year end summaries. While I indicated that we would investigate Masimo's request, I will need to consult with my client, thus neither agreed to produce nor refused to produce either category of documents.

With regard to RFP 154, now that Masimo has identified specific benefits that it contends are associated with its asserted patents (improved accuracy, eliminating light piping and cross-talk, and improving noninvasive measurement quality, as well as reduced cost), we will reevaluate our position with regard to this request.

With regard to RFPs 155-162, Masimo indicated that it contends that the forecasted or projected benefit for any and all features (including non-accused features and changes between different versions of accused Watches) are relevant to the incremental value of the accused features between different versions of accused Watches. Masimo further indicated that it believes that, by coming out with new models with additional features without raising prices, Apple effectively lowers the price of some features and that these projections are necessary to identify what features contribute to revenue growth other than blood oxygen. We will reconsider Masimo's requests in light of its explanation.

With regard to RFPs 163-164, Masimo indicated that it sought documents related to license agreements produced in the C.D. Cal. case, as well as documents related to opportunities that Apple passed up and did not seek a license. We will review and reevaluate Masimo's requests in light of this clarification.

Finally, we will consider Masimo's request for standard costs associated with the data produced in APL-DEL000027954, as well as Masimo's request for worldwide data associated with those watches.

Best,  
Jeff

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**Sent:** Wednesday, July 12, 2023 11:35 PM

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**Subject:** [Ext] RE: Apple v. Masimo (1377, 1378) - Discovery Responses

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Jeff,

Thank you for the productive meet and confer today. I'm writing to summarize our call and provide the follow-up we discussed.

For the following RFPs, Apple refused to search for and produce responsive documents:

RFP 121: We discussed Masimo's lost profits theory based on lost sales of Masimo watch modules. We further discussed that, to the extent Apple contends there are acceptable available noninfringing substitutes, Apple should fully respond to this request. During the call Apple stated it could not say whether they have such a contention at this time but Apple also stated it would reconsider its response to this RFP. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFPs 122-129: We discussed these requests together as they relate to third party component suppliers for the Apple Watch. Masimo explained these requests are relevant to Masimo's damages case, particularly given Apple's position on Masimo's lost profits case in the C.D. Cal. lawsuit. Apple agreed to revisit its responses. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 133-134: We discussed these requests together as they relate to Apple's financials for services. Masimo explained it contends that, where the blood oxygen feature is a basis for or contributed to an Apple Watch purchase, Masimo should be allowed to discover Apple's financial benefit beyond profit on watch hardware sale itself to also include profit from services including from the App. store, warranty, service, and replacement parts. Masimo further explained the relevance of understanding Apple's App store revenue connected to the Apple Watch, including putting Apple's service revenue related to the blood oxygen feature and other noninvasive health monitoring features (e.g., ECG, heart rate, temperature) in context with other service revenue. Apple agreed they now have a better understanding of Masimo's requests and the basis for relevance. Please let us know by the end of the week if Apple agrees to produce responsive documents.



RFP 136-138: Masimo explained that [REDACTED] Masimo explained it seeks a similar report for the business segment that Apple assigns app. store and other service revenue. Please let us know by the end of the week if Apple agrees to produce responsive documents. Masimo also explained the relevance of understanding the impact of Apple Watch sales on App store revenue and iPhone sales. The requested information is particularly relevant to GP factor 6 (“The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.”) Apple agreed they now have a better understanding of Masimo’s requests and the basis for relevance. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 153: For Apple’s bill of materials, Masimo explained that one responsive item requested is [REDACTED] Apple agreed to produce updated documents to those previously produced for earlier watch models. We further discussed that Masimo also seeks further details on Apple’s cost of the components and subcomponents related to the noninvasive sensor for measuring blood oxygen. Apple agreed they now have a better understanding of Masimo’s requests and the basis for relevance and agreed to investigate what more detail is available at the component and subcomponent level.

For the following RFPs, Apple agreed to meet and confer:

RFP 131: Apple asked Masimo to point to an example of the type of document that is responsive to this request. As one non-limiting example, see APL-MAS\_00695070-71. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 132: Masimo explained the requested documents are relevant to understanding Apple’s analysis of the benefits and comparative benefits of including the blood oxygen feature and other noninvasive health monitoring features (e.g., ECG, , heart rate, temperature). Apple agreed they now have a better understanding of Masimo’s requests and the basis for relevance. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 135: Masimo explained that [REDACTED] Masimo requested that [REDACTED] Please let us know by the end of the week if Apple agrees to provide the requested information.

RFP 152: Apple explained that it would not produce publicly available documents that Apple files with the SEC. Apple agreed it would produce responsive documents that Apple provides to shareholders, or other annual report type summaries of Apple’s business.

RFP 154: Apple asked Masimo to explain what “advantages and disadvantages” means in the context of this request. Masimo explained that it seeks information on accuracy benefits, eliminating light piping and cross-talk, and improving noninvasive measurement quality. Masimo also explained that to the extent Apple has responsive information on cost, that would also be

relevant. Apple agreed they now have a better understanding of Masimo's requests and the basis for relevance. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 155-162: We discussed that, to the extent Apple forecasted or projected that any feature difference between the requested watches served as a reason for the customer to purchase one watch model over another, Apple should provide that discovery. Please let us know by the end of the week if Apple agrees to produce responsive documents.

RFP 163-64: After our discussion Apple agreed they now have a better understanding of Masimo's requests and the basis for relevance. Please let us know by the end of the week if Apple agrees to produce responsive documents.

Finally, we discussed Apple's production of sales data at APL-DEL00027954. Masimo explained it seeks Standard Cost data for these watches, like Apple provided in prior sales data in the same format. Masimo also explained it seeks the revenue/unit/cost data for these watches over the same time period, on a worldwide basis. Please confirm Apple will supplement this production to provide this data.

Regards, Mark

**Mark Kachner**  
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---

**From:** Mark Kachner

**Sent:** Tuesday, July 11, 2023 7:54 PM

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**Subject:** RE: Apple v. Masimo (1377, 1378) - Discovery Responses

Jeffrey,

Tomorrow at 2:45 pm ET works for us. I'll send a zoom invite.

Thanks, Mark

**Mark Kachner**  
Partner



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**Knobbe Martens**

---

**From:** Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>

**Sent:** Tuesday, July 11, 2023 1:30 PM

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**Subject:** Re: Apple v. Masimo (1377, 1378) - Discovery Responses

Jared,

We're available to discuss the RFPs identified in your letter tomorrow at 2:45 pm ET. Does that work for you? If not, please let us know an alternative time.

Thanks,  
Jeff

---

**From:** Jared Bunker <[Jared.Bunker@knobbe.com](mailto:Jared.Bunker@knobbe.com)>

**Sent:** Monday, July 10, 2023 11:29:12 AM

**To:** Carson Olsheski <[COlsheski@desmaraisllp.com](mailto:COlsheski@desmaraisllp.com)>; Benjamin Luehrs <[BLuehrs@desmaraisllp.com](mailto:BLuehrs@desmaraisllp.com)>

**Cc:** [bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com) <[bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com)>; [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com) <[dmoore@potteranderson.com](mailto:dmoore@potteranderson.com)>; Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>; Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>

**Subject:** [Ext] Apple v. Masimo (1377, 1378) - Discovery Responses

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---

Counsel,

Please see the attached letter.

Sincerely,

Jared

**Jared Bunker**

Partner

949-721-2957 Direct

**Knobbe Martens**

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# EXHIBIT 11

**From:** [David Cho](#)  
**To:** [Mark Kachner](#); [Jeffrey Seddon](#); [bpalapura@potteranderson.com](#); [dmoore@potteranderson.com](#); [Greenfield, Leon](#); [Vote, Dominic](#); [Ford, Mark](#); [Milici, Jennifer](#); [Apple Masimo Service](#); [whmasimoantitrustservice@wilmerhale.com](#); [Brian Horne](#); [Payson LeMeilleur](#)  
**Cc:** [Knobbe.MasimoDE](#); [Jack Phillips](#); [Megan C. Haney](#); [Elena K. Wentz](#)  
**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference  
**Date:** Wednesday, August 23, 2023 7:22:39 AM  
**Attachments:** [2023-08-22 - Motion for Teleconference to Resolve Discovery Disputes.docx](#)

---

Mark,

We disagree with Masimo's characterizations of the parties' correspondence and discussions and particularly Masimo's allegations of delay, given that it has been Masimo, not Apple, that has been changing its availability and the issues in the conference request. Nonetheless, Apple is signed off on the revised draft request that you circulated yesterday (copy attached) once the dates are updated, and we can be available on 9/12 and 9/14-15. Our Delaware counsel will let you know whose signature you can use for Apple.

Regards,  
David

**David Cho**

**Desmarais LLP**

1899 Pennsylvania Ave. NW, Suite 400  
Washington, DC 20006  
T: (202) 451-4922

---

**From:** Mark Kachner <Mark.Kachner@knobbe.com>  
**Sent:** Tuesday, August 22, 2023 2:59 PM  
**To:** David Cho <DCho@desmaraisllp.com>; Jeffrey Seddon <JSeddon@desmaraisllp.com>; [bpalapura@potteranderson.com](#); [dmoore@potteranderson.com](#); [Greenfield, Leon](#) <[Leon.Greenfield@wilmerhale.com](#)>; [Vote, Dominic](#) <[Dominic.Vote@wilmerhale.com](#)>; [Ford, Mark](#) <[Mark.Ford@wilmerhale.com](#)>; [Milici, Jennifer](#) <[Jennifer.Milici@wilmerhale.com](#)>; [Apple Masimo Service](#) <[AppleMasimoService@desmaraisllp.com](#)>; [whmasimoantitrustservice@wilmerhale.com](#); [Brian Horne](#) <[Brian.Horne@knobbe.com](#)>; [Payson LeMeilleur](#) <[Payson.LeMeilleur@knobbe.com](#)>  
**Cc:** [Knobbe.MasimoDE](#) <[Knobbe.MasimoDE@knobbe.com](#)>; [Jack Phillips](#) <[JCP@PMHDELaw.com](#)>; [Megan C. Haney](#) <[mch@PMHDELaw.com](#)>; [Elena K. Wentz](#) <[EKW@PMHDELaw.com](#)>  
**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference

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David,

Masimo sent its request for a discovery-dispute conference last Friday 8/18. Apple's delay in providing a date and confirming authorization to file is prejudicing Masimo. Please provide the



requested information today.

Regarding RFPs 163-164: Masimo served these requests on May 23. The parties met and conferred on these requests on July 12. We understand Apple is still investigating its response to these requests, but Apple has refused to commit to producing responsive documents. If Apple reconsiders its position on these RFPs and chooses to resolve the dispute, we can alert the Court to that development. But until Apple decides to produce responsive documents, the parties are at an impasse.

For RFPs 132-134 and 137, we disagree that Monday was the “first discussion in which Masimo indicated it was seeking revenue from third-party apps.” As we stated at least on July 13, Masimo seeks “all sources of Apple’s service revenue related to the Apple Watch,” and “Masimo should be allowed to discover Apple’s financial benefit beyond profit on watch hardware sale itself to also include profit from all watch services including from the App. store, warranty, service, and replacement parts.” Masimo never limited its request to only Apple apps. And it is well understood that third parties pay Apple up to 30% of their revenue from their third-party apps. Masimo has been seeking this data for months. Until Apple decides to produce responsive documents, the parties are at an impasse.

For RFP 136: This request seeks “Apple’s Line of Business Reports for the Apple business segment related to services, applications, or Apple’s App Store from 2018 to present.” Your email below states that [REDACTED]

During yesterday’s meet and confer I asked for clarification on the contours of Apple’s representation, but Apple refused to provide clarification. Accordingly, we disagree with your statement that “To the extent that your email refers to something broader, we did not discuss that.” Rather, Masimo asked for clarification and Apple refused to provide any clarification. It is well known that Apple’s “Services” business is highly profitable, and that Apple treats its Service business as a distinct business unit separate from other of Apple’s hardware products.

<https://www.investopedia.com/apple-s-5-most-profitable-lines-of-business-4684130>. Apple tracks and publicly reports its services revenue. Masimo has been very clear that it seeks Apple’s Line of Business Report for “for the business segment that Apple assigns app. store and other service revenue.” See July 12 email. We understand from your email below that, [REDACTED]

[REDACTED], Apple is still refusing to produce the Line of Business Report for its services business segment responsible for the App. Store. Accordingly, we will add RFP 136 back to the request for a discovery-dispute conference.

Regards, Mark

**Mark Kachner**  
Partner  
310-407-3472 Direct  
**Knobbe Martens**

---

**From:** David Cho <[DCho@desmaraisllp.com](mailto:DCho@desmaraisllp.com)>

**Sent:** Tuesday, August 22, 2023 9:37 AM

**To:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>; Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>;



[bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com); [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com); Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; [whmasimoantitrustservice@wilmerhale.com](mailto:whmasimoantitrustservice@wilmerhale.com); Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>  
**Cc:** Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>; Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Elena K. Wentz <[EKW@PMHDELaw.com](mailto:EKW@PMHDELaw.com)>  
**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference

Mark,

We disagree with the characterization of our discussion in your email below in a number of respects. Most notably, we disagree that the parties are at an impasse with regard to Masimo's RFPs 163-164—as we discussed, Apple is expecting to finish out its investigation in light of the parties' prior discussions this week, thus we think that Masimo's declaration that the parties are at an impasse is premature. Moreover, with regard to RFPs 132-134 and 137, this call was the first discussion in which Masimo indicated it was seeking revenue from third-party apps—Masimo has no basis to immediately declare an impasse before we have even had an opportunity to seek our client's position on the issue. Nonetheless, we are working on identifying a third date for the discovery conference, as Masimo requested, and will let you know both the date and whether Apple has any proposed edits to the joint request once our client has a chance to review.

As to rest of your email, we don't think it's productive to detail every statement in which we disagree, but note a few specific points of disagreement or clarification. First, despite seeking all App Store revenue from Apple Watch apps, Masimo failed to identify any app (third-party or Apple)

[REDACTED] or explain how Apple could identify revenue related to the accused functionality. As we previously explained [REDACTED]

[REDACTED] Second, Masimo provided no factual support for expansive demands for all App Store revenue from Apple Watch apps (or any other hypothetical "full financial benefits") in light of its patent, antitrust, or false advertising allegations. Third, [REDACTED]

[REDACTED] To the extent that your email refers to something broader, we did not discuss that. Fourth, the characterization of our discussion regarding accuracy, light piping, cross-talk, quality, and cost is completely inaccurate—as we stated, Apple has conducted a reasonable search and provided an extensive technical document production that includes documents related to accuracy, light piping, cross-talk, and quality. And when we asked you to identify any documents that you expected to be produced that were absent, you could not identify any category or types of documents that were missing from the production, other than to repeat the general subject matter of Masimo's request.

As for Masimo's request for bills of materials, examples of the bills of materials that we have produced for the accused Watches include APL\_DEL00261838; APL\_DEL00262039;

APL\_DELO1117836; and APL\_DELO1117868. If you have further issues after reviewing the bills of materials, please let us know.

Regards,  
David

**David Cho**

**Desmarais LLP**

1899 Pennsylvania Ave. NW, Suite 400  
Washington, DC 20006  
T: (202) 451-4922

---

**From:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>

**Sent:** Monday, August 21, 2023 4:44 PM

**To:** David Cho <[DCho@desmaraisllp.com](mailto:DCho@desmaraisllp.com)>; Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>; [bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com); [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com); Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; [whmasimoantitrustservice@wilmerhale.com](mailto:whmasimoantitrustservice@wilmerhale.com); Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>  
**Cc:** Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>; Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Elena K. Wentz <[EKW@PMHDELaw.com](mailto:EKW@PMHDELaw.com)>

**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference

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David,

Our second meet and confer today on RFPs 132-134, 136-137, 153-154, and 163-164 confirmed that the parties are indeed at an impasse on RFPs 132-134, 137, and 163-164, with no commitment from Apple to produce responsive documents. We revised the request for a discovery-dispute conference, attached. Please confirm that September 1 and 8 are still available for this discovery conference and please provide one other option for the hearing as Masimo has a conflict on September 5. Please also confirm we have your authorization to file.

For RFP 132–134, and 137, Apple stated that it has thus far agreed to provide discovery only on Apple apps or Apple subscriptions that use blood oxygen measurements. Apple confirmed that is has not committed to provide discovery on any third-party apps that use blood oxygen measurements, even though Masimo previously stated it seeks discovery on all App Store revenue, and never limited its request to revenue from only certain apps. Apple further confirmed it has not committed to providing discovery on all apps or subscriptions, or other revenue sources related to the watch. We discussed my July 12 email where Masimo made clear that, despite Apple’s proposal to narrow, Masimo seeks discovery on Apple’s full financial benefit beyond profit on watch hardware sale itself to also include profit from services including from the App. store, warranty, service, and replacement parts. During the call, you stated that you would raise these requests again with



Apple. But you confirmed that to date Apple has not committed to provide the requested discovery.

For RFP 136, you confirmed that [REDACTED]

For RFP 153, Apple stated it produced responsive documents showing [REDACTED]  
[REDACTED] Apple stated it would follow-up with production numbers. Please provide those as soon as possible.

For RFP 154, Apple stated that it believes its reasonable search for technical documents generally would identify responsive documents. But Apple could not say whether it conducted any particular search for responsive documents related to accuracy, light piping, cross-talk, quality, or cost for the accused blood oxygen measurement feature, and Apple stated it did not know how to conduct a more particularized search.

For RFPs 163-164, Apple stated it was still conducting its search for responsive documents and planned to wrap the search by the end of the week. Until Apple completes its search, Apple is maintaining all objections and is not committing to produce responsive documents that result from this search.

We further discussed that both parties would supplement financial and sales data for the accused products expeditiously.

Regards, Mark

**Mark Kachner**  
Partner  
310-407-3472 Direct  
**Knobbe Martens**

---

**From:** David Cho <[DCho@desmaraisllp.com](mailto:DCho@desmaraisllp.com)>

**Sent:** Monday, August 21, 2023 7:42 AM

**To:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>; Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>;  
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<[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark  
<[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo  
Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; [whmasimoantitrustservice@wilmerhale.com](mailto:whmasimoantitrustservice@wilmerhale.com);  
Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>  
**Cc:** Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>;  
Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Elena K. Wentz <[EKW@PMHDELaw.com](mailto:EKW@PMHDELaw.com)>

**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference

Mark,

As indicated below, we're available today between 2-4 pm ET, so a 4 pm ET start does not work. If you're not available during the times we proposed for today or Tuesday, please let us know your availability on Wednesday. Moreover, Masimo's unilateral declaration that its July 31<sup>st</sup> correspondence "confirmed the parties were at an impasse" does not make it so. To the contrary, as we previously noted, Apple has continued its investigations in response to Masimo's requests following our discussions and, as a result, expects that we may be able to resolve many or all of the parties' differences regarding those requests.

If Masimo insists on requesting a discovery conference without conferring with Apple on these requests (Masimo's Requests for Production Nos. 132-134, 136-137, 153-154, and 163-164) to determine what, if any, actual disputes remain, Masimo should remove Apple's name from the request. Masimo does not have Apple's permission to file this as a joint request at this time.

Regards,  
David

**David Cho**  
**Desmarais LLP**

1899 Pennsylvania Ave. NW, Suite 400  
Washington, DC 20006  
T: (202) 451-4922

---

**From:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>  
**Sent:** Friday, August 18, 2023 7:19 PM  
**To:** David Cho <[DCho@desmaraisllp.com](mailto:DCho@desmaraisllp.com)>; Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>; [bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com); [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com); Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; [whmasimoantitrustservice@wilmerhale.com](mailto:whmasimoantitrustservice@wilmerhale.com); Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>  
**Cc:** Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>; Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Elena K. Wentz <[EKW@PMHDELaw.com](mailto:EKW@PMHDELaw.com)>  
**Subject:** [Ext] RE: Apple v. Masimo (Delaware) - Discovery Conference

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David,

Since the meet and confer on July 12, the parties exchanged numerous emails attempting to resolve Apple's objections to Masimo's Requests for Production Nos. 132-134, 136-137, 153-154, and 163-164. Finally on July 31, Masimo sent the most recent substantive communication on these requests that confirmed the parties were at an impasse because Apple has refused to produce responsive



documents. Given the upcoming discovery deadline, please let us know as soon as possible whether Apple has any edits to Masimo's request for a discovery-dispute conference so that Masimo can file.

Separately, to the extent Apple has reconsidered its position on these Requests for Production, we are available to discuss Monday at 4pm EDT.

Regards, Mark

**Mark Kachner**  
Partner  
310-407-3472 Direct  
**Knobbe Martens**

---

**From:** David Cho <[DCho@desmaraisllp.com](mailto:DCho@desmaraisllp.com)>

**Sent:** Friday, August 18, 2023 10:05 AM

**To:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>; Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>; [bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com); [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com); Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; [whmasimoantitrustservice@wilmerhale.com](mailto:whmasimoantitrustservice@wilmerhale.com); Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>

**Cc:** Knobbe.MasimoDE <[Knobbe.MasimoDE@knobbe.com](mailto:Knobbe.MasimoDE@knobbe.com)>; Jack Phillips <[JCP@PMHDELaw.com](mailto:JCP@PMHDELaw.com)>; Megan C. Haney <[mch@PMHDELaw.com](mailto:mch@PMHDELaw.com)>; Elena K. Wentz <[EKW@PMHDELaw.com](mailto:EKW@PMHDELaw.com)>

**Subject:** RE: Apple v. Masimo (Delaware) - Discovery Conference

Mark,

We disagree that the parties are at impasse on Masimo's Requests for Production Nos. 132–134, 136–137, 153–154, and 163–164. Since our meet and confer on these issues over a month ago, Apple has been investigating whether it has documents responsive to many of Masimo's request, as we told you we would, and, as a result, we expect that we will be able to resolve many or all of Masimo's alleged disputes with an additional discussion. We are available on Monday or Tuesday at both 2–4 pm ET for a meet and confer.

If, however, Masimo insists on seeking a discovery-dispute conference without giving the parties an opportunity to resolve or at least narrow the issues in dispute, Apple is available on 9/1, 9/5, or 9/8. Sending us a draft teleconference motion on unripe issues with less than 24 hours notice before you plan to file it does not give us adequate time to discuss it with our client, and we may not be able to provide you edits or a sign-off today, though we are working toward getting back to you as soon as possible.

Best regards,  
David

**David Cho**

**Desmarais LLP**

1899 Pennsylvania Ave. NW, Suite 400  
Washington, DC 20006  
T: (202) 451-4922

---

**From:** Mark Kachner <[Mark.Kachner@knobbe.com](mailto:Mark.Kachner@knobbe.com)>

**Sent:** Thursday, August 17, 2023 7:14 PM

**To:** Jeffrey Seddon <[JSeddon@desmaraisllp.com](mailto:JSeddon@desmaraisllp.com)>; [bpalapura@potteranderson.com](mailto:bpalapura@potteranderson.com); [dmoore@potteranderson.com](mailto:dmoore@potteranderson.com); Greenfield, Leon <[Leon.Greenfield@wilmerhale.com](mailto:Leon.Greenfield@wilmerhale.com)>; Vote, Dominic <[Dominic.Vote@wilmerhale.com](mailto:Dominic.Vote@wilmerhale.com)>; Ford, Mark <[Mark.Ford@wilmerhale.com](mailto:Mark.Ford@wilmerhale.com)>; Milici, Jennifer <[Jennifer.Milici@wilmerhale.com](mailto:Jennifer.Milici@wilmerhale.com)>; Apple Masimo Service <[AppleMasimoService@desmaraisllp.com](mailto:AppleMasimoService@desmaraisllp.com)>; Brian Horne <[Brian.Horne@knobbe.com](mailto:Brian.Horne@knobbe.com)>; Payson LeMeilleur <[Payson.LeMeilleur@knobbe.com](mailto:Payson.LeMeilleur@knobbe.com)>

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**Subject:** Apple v. Masimo (Delaware) - Discovery Conference

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Counsel,

I'm attaching a request for a discovery-dispute conference that we plan to file tomorrow. Please provide at least three days between August 28 and September 8 when Apple is available for the conference.

Regards, Mark

**Mark Kachner**

Partner

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# EXHIBIT 12

INVESTING > STOCKS

# Apple's 5 Most Profitable Lines of Business

By SHOSHANNA DELVENTHAL Updated February 14, 2022

Reviewed by ANDY SMITH

Fact checked by RYAN EICHLER

Founded in 1976, Apple ([AAPL](#)) became the first U.S. corporation to surpass \$1 trillion in [market capitalization](#) in 2018. <sup>[1]</sup> The company's spectacular growth in sales, profits, and share price were historically driven by solid sales of its iPhone products.

But as sales of the popular [smartphone](#) and other technology hardware devices slowed down, the company made aggressive efforts to transform itself into one of the world's leading providers of digital services.

But what are the company's most popular and most successful business [segments](#)? This article examines Apple's most profitable business lines and how they contribute to its success.

## KEY TAKEAWAYS

- Apple was the first American company whose market capitalization reached \$1 trillion.
- The company's main business segments are the iPhone, Services, Mac, iPad, as well as its Wearables, Home, and Accessories unit.
- Apple continues to make aggressive efforts to transform itself into one of the world's leading providers of digital services.
- Its iPhone unit is the main driver for growth in sales, profits, and share price.



## Apple's Turnaround

Even though Apple's fiscal year 2019 was characterized by a series of ups and downs, it successfully boosted its [revenue](#) from its services division. But earnings from its most popular products, such as iPhones and MacBook laptops, fell somewhat below 2018 levels. For the first fiscal quarter of 2020, Apple forecast revenue between \$85.5 billion and \$89.5 billion. <sup>[2]</sup> The company announced revenue of \$91.8 billion and profit of \$22.2 billion—an all-time record for both net income and revenue. <sup>[3]</sup>

In the 2019 fiscal year, Apple posted sales of \$260.2 billion on a net income of \$55.2 billion. <sup>[4]</sup> In the first quarter of 2019, earnings came in at \$4.18 on a per-share basis. <sup>[5]</sup> This was a record high for the company. But in the first fiscal quarter of 2020, earnings per share were up to \$4.99. <sup>[6]</sup>

Here is a more detailed look at Apple's five most profitable business lines as they perform today.

## iPhone

Apple's core product is the iPhone. The popular smartphone is among the top five smartphone vendors in the world. <sup>[7]</sup> [Demand](#) remained strong after the company released the [iPhone 13](#), which the company states is "setting a new standard for performance and empowering our customers to create and

The company reported net sales for the iPhone unit of \$192 billion for the 2021 fiscal year compared to \$137.8 reported in the year before. Sales hit \$38.9 billion during the fourth quarter—up 47% from the same quarter of 2020, which earned \$26.4 billion. <sup>[10]</sup>

The company blamed the [ongoing challenges](#) of the COVID-19 pandemic for lower-than-expected iPhone sales. <sup>[11]</sup> Previous declines in iPhone sales were attributed to a slowdown in China, a longer iPhone replacement cycle, and heightened competition in the [global smartphone market](#).


#### FAST FACT

*Apple reportedly had to cut production of the iPhone 13 because of ongoing issues with supply reductions from its manufacturing partners.* <sup>[12]</sup>

## Services

The company's services business is led by the App Store and Apple Music. The segment's revenue also comes from selling a range of services, such as AppleCare, Apple Pay, iCloud storage services, AppleCare warranties, and subscriptions to services like Apple Music, Apple Arcade, Apple TV+, and the Apple Card, which competes with other financial payment giants. <sup>[13]</sup>

Apple's Services segment posted revenue of \$68.4 billion during the 2021 fiscal year and \$18.3 billion for the fourth quarter. This is compared to \$53.8 billion for the previous year and \$14.5 during Q4-2020. <sup>[10]</sup> This represented an all-time high for the unit. <sup>[8]</sup>

 **Important:** The end of Apple's fiscal year doesn't include sales for the holiday season and the three most lucrative months of the year—

## Mac

Apple's personal computer business is built around the Mac and includes its MacBook laptops and the iconic iMac desktop computers. This unit generated sales of \$35.1 billion (\$9.2 billion for the fourth quarter of 2021), which is an increase from the \$28.6 billion reported in 2020 (\$9 billion in Q4-2020).<sup>[10]</sup>

Mac's contribution to Apple's growth has consistently fallen as the personal computer industry experiences slowing demand worldwide. Keep in mind, though, that Apple's personal computer business is very important for the company from a strategic perspective. That's because it's part of a broad, interlinked product family running on the [iOS operating system](#).

## iPad

When Apple launched its iPad in 2010, it quickly became the first commercially successful tablet computer to hit the market. In the first three months after it was released, the device sold more than three million units.<sup>[14]</sup>

Although worldwide demand for tablets is waning, Apple continues to dominate this part of the [market](#).<sup>[15]</sup> This unit drew in sales of \$31.9 billion during the 2021 fiscal year and \$8.3 billion during the year's fourth quarter. That's compared to \$23.7 billion and \$6.8 billion for the 2020 fiscal year and Q4-2020, respectively.<sup>[10]</sup>

## Wearables, Home, and Accessories

Apple's Wearables, Home, and Accessories segment is made up of devices such as AirPods, Apple Watch, and HomePods. The segment posted \$38.4 billion in revenue during 2021 and \$8.8 billion for the year's fourth quarter. That's compared to \$30.6 billion and \$7.9 for the same periods in 2020, respectively.<sup>[10]</sup>

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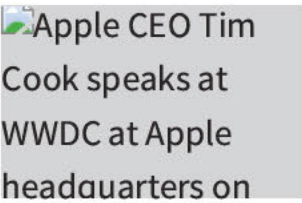
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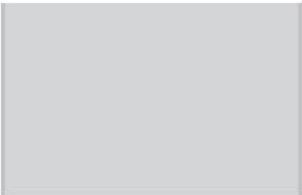
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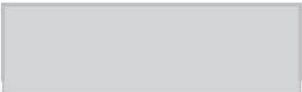
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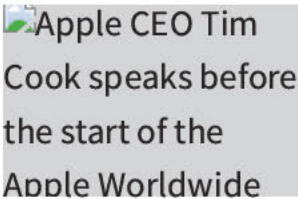
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## Apple's 5 Most Profitable Business Regions (AAPL)



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How Google (Alphabet) Makes Money: Advertising and Cloud



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The BCG growth-share matrix is a heuristic developed by the Boston Consulting Group used to classify a firm's project outlooks. [more](#)

## Ancillary Revenue: What it is, How it Works, Examples

Ancillary revenue is the revenue generated from goods or services that differ from or enhance the main services or product lines of a company. [more](#)

## Apple Pay Definition

Apple Pay is a contactless payments system created by Apple and in use by over 441 million customers. [more](#)

## Apple iOS


Apple iOS is the mobile operating system for the Apple iPhone and iPad. [more](#)






## E-commerce Defined: Types, History, and Examples


E-commerce is a business model that enables the buying and selling of goods and services over the internet. [more](#)

## Disruptive Innovation: Meaning and Examples


Disruptive innovation describes innovations that make products and services more accessible, affordable, and available to a larger population. [more](#)







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